

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 15,0 c
4. Edition

En

PES 8 A 95 D 412 LS2334 Z RQ 250/1100 AB793DL
RQV 200-1100 AB794L
RQV 250-1100 AB907DL

supersedes 11.73
company: MAN
engine: D 2858..
M2 (304PS-1)

1-2-7-8-4-5-6-3 je 45°

"Z" M4 (275 PS - 2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

See camshaft BMP 001/67

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,5 - 8,0	0,5			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ.. 793 DL

Checking of slider FRG check rev/min 1		Control rod travel mm 2		Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
600	15,7-16,3	600	16,0	1120	15,2-15,6	570	0	200	6,6-8,1	1000	15,8-16,0		
				1150	9,0-13,8			300	4,3-6,4	1100	15,2-15,7		
				1190	0 - 8,5			400	0,4-3,0				
				1250	0			470	0				

Torque-control travel on flyweight assembly dimension a = 0,15 mm Speed regulation: At 1140-1155 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm ³ /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm mmRW 7	
1100	115,0-118,0			800	116,0-120,0	100	mind.20
				500	max. 117,5	250	6,0
							"Z"
							./.

Checking values in brackets

A1

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
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B. Governor Settings

Testoil-ISO 4113

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1145	14,8-18,3				ca. 12	150	6,2-8,0	1145	8,3
		0					250	3,8-5,8		
ca. 66	1100	15,0-18,0					350	1,1-3,1		
		0					500	0 -1,6		
	1180	8,0-13,0					640	0		
	1260	0 - 7,6								
②a	1360	0								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤	④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1100	-Z - 2 - 100,5-102,5	500	800 500	103,5-106,5 max. 97,5	100 250	mind. 18 6			

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

150-1100 AB907D

Torque control 1 = 0,3mm

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1140	14,4-17,6				ca. 13	100	7,6-10,2	200	0,6-1,2
		0					200	5,7- 8,5	500	3,4-3,8
		0					300	2,5- 5,4	900	5,6-6,0
		0					410	0	1140	8,3
②a			Torque control n 1140 = 0 mm n 950-500 = 0,3-0,4 mm							

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤	④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1100	115,5-117,5	1140-1155*	800	114,5-117,5	100	mind. 20			
	-2 - Z -				250	7,0			
1100	100,5-102,5	1140-1155* 1mmRW less	800 500	103,5-106,5 max. 97,5	100 250	mind. 10 7,0			
					Change-over point 150-220 U/min				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 A 80 B 410 RS 174
1062

RQ 300/1425 A 400 D

supersedes 15.2 62
company: Daimler-Benz
engine: OM 322

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,3			
200	6	1,2 - 2,0				
	15 9	10,3 - 11,4 2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Control rod travel mm 8	Control rod travel mm 10	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	
14 - 14,8	14,4	1425 1460 1500 1550 1660	14 - 14,4 10,5-14 6,2-11,4 0 - 8 0	570 0	200 300 350 400 470	7 - 8 5 - 7 3,3-5,6 1 - 3,8 0	500 700 900 1100	15,8-16,6 15,4-15,8 14,9-15,4 14,4-14,8			

Torque-control travel on flyweight assembly dimension a = 0,5 mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3	Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /-1000 strokes 2	Control rod stop mm 3a	Control rod stop mm 3b	cm ³ /-1000 strokes 5	Control rod travel mm 6	Control rod travel mm 7	Control rod travel mm 6
54,0-57,0	700		1400 700 500	55,5 - 58,5 56,0 - 59,0 55,5 - 59,5	100	mind.7,9

Checking values in brackets

Test Specifications Fuel Injection Pumps and Governors

Edition 3.64
En

VDT-WPP 001/4
DAI 5,11

PES 6 A 80 B 410 RS 174 EP/RSV 250-1300 A0 A 391 D
S 1062

supersedes 13.4.62
company: Daimler-Benz
engine: OM 321 A

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,4			
	6 15	1,2 - 2,0 10,3 - 11,4				
200	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 74 ⑤	1300	12	without auxiliary spring with auxiliary spring	1400	8,2	ca. 38	250	6,5	1280	0
	1450	6					100	19 - 21	1000	0,5-0,7
	1400	7,2-8,8					250	6,2-6,8	600	1,0-1,2
	1500	2,4-5,4					400	5,2-6,2	300	1,0-1,2
	1600	0 - 3					600	1 - 4,3		
1700	0 - 1	900	0 - 1							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop		
Test oil temp. 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
	1280	54,5 - 56,5	1310-1330	1000	54,5 - 57,0			250	6,5
				700	57,0 - 60,0				
				50°C	53,0 - 57,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

A4

Test Specifications Fuel Injection Pumps ② and Governors

En

PES 4 A 85 C 410 RS 2090	RQ 250/1200 AB588DL (1)
PES 4 A 85 C 410 RS 2195	RQ 250/1200 AB590DL (2)
PES 4 A 90 C 410 RS 2195	RQ 250/1300 AB590DL (3)
D	RQ 250/1200 AB686 L (4)
	RQ 250/1300 AB686 L (5)

supersedes 1.68
company: OM Brescia
engine: (Büssing-OM)
CO 2 D (1,2)
CO 3 D (3)
CO3D-Var23(4,5)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15+0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes "C" 8,50	Control rod travel mm	Fuel delivery cm ³ /100 strokes "C" 90	Control rod travel mm
1000	9	4,9 - 5,5	4,1-4,5	5,8 - 6,3	5,1 - 5,5
	6	1,3 - 2,1	0,6-1,4	2,5 - 3,4	1,6 - 2,6
	15	12,3 -13,1	- - -	13,6 -14,3	- - -
200	9	3,9 - 4,4	1,4-2,2	3,8 - 4,6	1,9 - 2,9

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

250/1200 AB588DL (1)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point	Test specifications			Setting point	Test specifications			rev/min	Control rod travel mm
1	2	3	Control rod travel mm	Control rod travel mm	rev/min	7	Control rod travel mm	rev/min	Control rod travel mm	11	12
1100	14,6-15,4	1100	15,0	1220	14,8-15,0	490	0	100	5,3-7,4	400	15,8-16,7
				1240	10,0-15,0			150	4,7-6,8	600	15,5-15,9
				1260	5,4-12,0			250	2,8-4,8	800	15,1-15,5
				1300	0 - 7,0			350	0 -1,6	900	15,0-15,2
				1350	0			390	0		

Torque-control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
1180	66,2 - 68,2	600	900 600	61,7 - 64,7 56,5 - 59,5	100	ca. 15mm RW

Checking values in brackets

B. Governor Settings

250/1200 AB590DL (2)

OMB 4,4 b -2-

Testoil-ISO 4113

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1150	14,7-15,3	1150	15,0	1200	14,7-15,0	540	0	100	6,5-8,1	500	15,7-16,2
				1250	7,0-12,4			200	5,2-7,2	600	15,2-15,6
				1300	0 - 7,5			300	3,0-5,2	700	15,0-15,3
				1370	0			440	0		

Torque-control travel on flyweight assembly dimension a = **0,3** mm Speed regulation At **1** mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7
1180	69,5 - 71,5	600	900	65,0 - 68,0	100	ca. 15 mm RW
			600	61,0 - 64,0		
1180	66,0 - 68,0	600	900	61,0 - 64,0		
			600	58,0 - 61,0		

Checking values in brackets

B. Governor Settings

250/1300 AB590DL (3)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1250	14,7-15,3	1250	15,0	1300	14,7-15,0	550	0	100	7,0-8,1	600	15,8-16,0
				1340	8,0-13,0			200	5,8-7,7	700	15,4-15,7
				1380	0 - 6,0			300	3,5-5,7	800	15,0-15,2
				1450	0			400	0 -2,5		
								450	0		

Torque-control travel on flyweight assembly dimension a = **0,3** mm Speed regulation At **1** mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7
1280	71,5 - 73,5	500	1000	67,5 - 70,5	100	ca. 15 mm RW
			700	66,5 - 69,5		
			500	60,5 - 63,5		

En Checking values in brackets

B. Governor Settings

250/1200 AB686L

(4)

OMB 4,4 b

-3-

Testoil-ISO 4113

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	1200	15,7-16,0	560	0	100	6,9-8,1	-	-
				1220	15,6-16,0			200	5,7-7,7		
				1250	10,0-14,9			300	3,4-5,7		
				1300	0 - 8,3			400	0 -2,6		
				1360	0			460	0		
Breakaway not before $n = U/\text{min.}$											

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7
1200	81,0 - 83,0		800	78,5 - 81,5	100	ca.21 mm RW
(4) 1200	79,0 - 81,0	1200	800	74,5 - 77,5		

Checking values in brackets

B. Governor Settings

250/1300 AB686L

(5)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	1300	15,7-16,0	570	0	150	6,6-8,1	-	-
				1320	15,5-16,0			200	5,7-7,9		
				1350	10,2-14,8			300	3,8-9,8		
				1400	0 - 8,5			400	0 -2,7		
				1460	0			470	0		
Breakaway not before $n = 1320 U/\text{min.}$											

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7
1300	82,0 - 84,0		800	77,0 - 81,0	100	ca. 21 mm RW

En Checking values in brackets

A7

Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP 001/4
DAI 5,1 i
Edition 3.64

En

PES 6 A 80 B 410 RS 174 RQ 250/1500 A 368 D
1062

supersedes 1.5.61
company: Daimler-Benz
engine: OM 321 mA

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,3			
	6 15	1,2 - 2,0 10,3 - 11,4				
200	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③			
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12		
1450	14-14,8	1450	14,4	1500	14 - 14,4	510	0	100	6,3-8,1	500	15,6-16		
				1520	10 - 14,4			200	4,8-6,9			700	15,1-15,4
				1540	5 - 12			250	3,6-5,8			900	14,4-14,8
				1560	0 - 9,5			300	2 - 4,5				
				1640	0			410	0				

Torque-control travel on flyweight assembly dimension a = 0,5 mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1000	53,0 - 55,0	500	500	52,0 - 56,0		
			700	53,5 - 56,5		
			1480	55,0 - 58,5		

Checking values in brackets

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4
DAI 4,6 1 1
Edition 3.64

En

PES 6 A 70 B 410 RS 64 RQV 250-350/1500 A 139
RS 64 z*
1034

supersedes 1.5.61
company: Daimler-Benz
engine: OM 312
OM 321*

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,5 - 7,0	0,3			
	6 18	1,2 - 1,9 11,1 - 11,9				
200	6	0,6 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
62±1,5	1500	15 - 18	42±1,5	300	14,7-15,3	10±1,5	250	6 - 8		
	1550	9 - 14		400	9,5-15		300	4 - 7		
	1600	2,6- 9,8		500	3 - 4		350	1,5-4,5		
	1650	0 - 5,5		1250	3 - 4		430	0		
	1710	0		1430	0					

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Inter- mediate speed ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
1000	43,5 - 45,4	1510-1530			100	mind.7,9	350	
1000	49,5 - 51,5							

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ② and Governors

En

PES 6 A 80 B 410 RS 64 RQ 250/1000 A 270 D
1034

supersedes 3.1.61
company: Daimler-Benz
engine: OM 315
(125 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,4			
	6	2,2 - 3,0				
	15	11,6 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control			
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12		
600	14,6-15,4	600	15	1000	14,5- 15	540	0	200	6 -8,1	450	15,6-21		
				1010	12 - 15			250	5 -7,2			500	15,2-15,7
				1030	7 - 13			300	2,6-6			550	15 -15,3
				1050	0 - 10			400	0 -2				
				1100	0			440	0				

Torque-control travel on flyweight assembly dimension a =

0,3 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
980	82,5-84,5	500	500 700	80,2-83,2 81,7-84,7	100	mind. 13,4

Checking values in brackets

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 DAI 4,6

En

PES 6 A 70 B 410 RS 64

RQV 250-650/1400 A 175
183

supersedes

company: Daimler-Benz
engine: OM 312

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	6	1,2 - 1,9	0,4		1,6	
	12 18	6,5 - 7,0 11,1 - 11,9				
200	6	0,6 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed				Intermediate rated speed				Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	①a ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11	①
62±1,5	1400	10 - 13	42±1,5		650	8 - 10,4		100	7 - 8	-	-	
	1420	7 - 11			750	3,8 - 7		250	6 - 8			
	1450	3 - 8			850	3,8 - 4,3		400	4 - 6,3			
	1480	0 - 6			1250	3 - 4,3		550	1 - 4,5			
	1530	0			1350	0		660	0			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b ④a	Fuel delivery characteristics high idle speed ⑤a ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1000	45 - 47	1405 - 1420					650	

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Geschäftsbereich KH, Kundendienst, Kfz-Ausrüstung.
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Test Specifications Fuel Injection Pumps ① and Governors

En

supersedes

company: Hanomag, Hannover
engine: D 55

PE 4 A 75 B 420 RS 87 RQV 250...600 A 78
37 A 15
1063 A 78

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,4 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	9	3,0 - 3,4	0,3			
	12 15	6,1 - 6,4 8,5 - 9,3				
200	9	2,1 - 2,8				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm/rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
66±1,5	600	16 - 18,4	-	-	-	10±1,5	100	7 - 7,6		
	620	9 - 15					200	5 - 7,2		
	660	0 - 7					300	2,5 - 4,2		
	700	0					400	0 - 1,3		
							430	0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
600	94,0 - 96,0	600 - 620						

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4
HAN 5,7 b
Edition 10.64

En

PE 4 A 75 B 420 RS 37
87
S 1063

RQV 200-650 A 15
250-650 A 78
250-675 A 78 **
250-750 A 78 ***

supersedes 20.7.60
company: Hanomag
engine: D 57

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,4 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	9	2,8 - 3,4	0,4			
	6 15	0,6 - 1,1 8,3 - 9,3				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
66±1,5	650	15 - 20				10±1,5	100	6,3- 8		
	550	13 - 18					200	4,3-6,5		
	700	4 - 11					300	2,3-4,8		
	740	0 - 1					400	0 -1,6		
	760	0					460	0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
650	93 - 95	660 660* 680** 760***						./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

RQV 250 - 650 A 78 *

66±1,5	650	14 - 17,5				10±1,5	200	5 - 7,3		
	680	7,8- 13					250	4 - 6,1		
	720	0 - 6					400	0,4- 1,8		
	760	0					460	0		

RQV 250 - 675 A 78 **

66±1,5	675	14,8-17,4				10±1,5	200	6,2-7,8		
	700	8,8-13,2					300	3,2-4,7		
	740	0 - 7					400	1,2-2,8		
	790	0					480	0		

RQV 250 - 750 A 78**

66±1,5	750	14,2-17,4				10±1,5	100	7 - 9,2		
	760	12,2-16,6					200	5 - 8,4		
	800	5 - 10,4					300	2,4- 4		
	840	0 - 5					400	0,6- 2,4		
	880	0					480	0		

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP 001/4
BOS 10,9 1

En

PE 6 A 90 B 312 LS 314 RQ 200/1000 A 423 B
S2044

supersedes 6.10.61
company: Büssing
engine: U 11/200

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	10,3-10,7	0,4			
	9	6,0- 6,5				
200	9	3,9- 4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
450	15,4-16	450	15,7	1020 1040 1060 1110	13 - 13,4 6 - 13 0 - 9 0	420	0	100 150 200 250 320	6 - 8 5 - 7 3,4-5,6 1,3-3,7 0	400 600 800 950	15,6- 16 15 - 15,4 14,1- 14,5 13,4- 13,8
Breakaway not before 1020											

Torque-control travel on flyweight assembly dimension a = 0,8 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery idle speed ⑥	
rev/min	cm ³ -1000 strokes	rev/min	rev/min	cm ³ -1000 strokes	rev/min	cm ³ /1000 strokes/mm Control rod travel
1	2	3	4	5	6	7
1000	107,0-109,0	500	500 700	121,5-125,5 115,0-119,0	100	mind. 15

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP/001/4
BOS 10,9 m
Edition 10.64

En

PE 6 A 90 P 412 RS 315 RQ 200/1000 A 424 D
S 2044

supersedes 6,10.61
company: Büssing
engine: S 11/200

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
	12	10,3 - 10,7	0,4			
1000	9	6,0 - 6,5				
200	9	3,9 - 4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ④				Torque control ③			
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12		
980	13,1-13,7	980	13,4	1020 1040 1060 1110	12,9-13,2 6 - 12,4 0 - 9 0	420	0	100 150 200 250 320	6 - 8 5 - 7 3,5-5,8 1,5- 4 0	400 600 800 950	15,6-16 15 - 15,4 14,2-14,6 13,3-13,8		
Breakaway not before 1020													

Torque-control travel on flyweight assembly dimension a = 0,9 mm Speed regulation. At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
1000	108,5-110,5	500	500 700	121,0 - 125,0 116,0 - 120,0		

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP 001/4 BOS 10,9 h

Edition 10.64

En

PE 6 A 90 B 412 RS 315
2044

RQ 200/1000 A 364 D

supersedes 1.5.61
company: Büssing
engine: S 11/200

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15 + 0,1$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	10,3 - 10,7				
	9	6,0 - 6,5				
200	9	3,9 - 4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③			
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12		
950	14,6-15,4	950	15	1020 1040 1060 1110	14,8-15 8,6-14,4 0 -10,6 0	420	0	100 200 300 320	6,3-8,1 3,8- 6 0 -1,5 0	500 600 750	15,9- 16 15,5-15,9 15 -15,2		
Breakaway not before 1020													

Torque-control travel on flyweight assembly dimension a = $0,3$ mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1000	114,0-116,0	500	500 700 900	116,0-120,0 113,5-117,5 115,0-119,0		

Checking values in brackets

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4

En

Edition 8.73

PES 6 A 75 C 320 RS 1254 EP/RSV 250-1350 A2 B571

supersedes 5.70
company: Saviem
engine: 597

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing difference between control-rod travel 9 and 21 4.5-5.5°

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,2 - 6,6	0,4			
	9	3,2 - 3,7				
	15	8,5 - 9,5				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control				
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm			
1	2	3	4	5	6	7	8	9	10	11			
ca. 54	1350	16,0	without auxiliary spring			ca. 19	250	6,7	1330	0			
	1430	10,2					100	19 - 21			450	0	
1500	3,8	250				6,4-7,0	300	1,2-1,8					
⑤	1450	6,4 - 9,7				with auxiliary spring			320	3,0-4,8	300		
	1500	2,0 - 5,9							450	0 - 1			
	1600	0 - 1											

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm ³ /1000
1	2	3	4	5	6	7	8	9
1300	53,0-55,0	1370	500	41,5 - 44,5	100	ca. 20mmRW	250	7,5-11,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 IHC 2,2 e
Edition 10.64

En

PES 4 A 50 B 420 LS 105 EP/RSV 250-950 A 4/17 D
S1162 A 4 B 17DR

supersedes 8.57
company: IHC
engine: DD 132

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	2,2-2,7	0,3			
200	9	0,9-1,4				
	18	4,5-5,2				
200	9	0,6-1,1				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control			
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11		
ca. 55	950	16	without auxiliary spring			ca. 22	250	5,5	930	0		
	990	10,6					800	0,4-0,6				
1020	5,4	700				0,6-0,8						
⑤	1000	6,4-10,2				with auxiliary spring	100	19 - 21	300	250	5,2-5,8	0,6-0,8
	1050	2,2- 4,1					300	4,2-4,9				
	1100	0,3- 1,8					400	0,8-3				
	1150	0,3- 1		550	0 -1							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9
930	28,2-30,2	960 - 970	500 700	28,2-31,2 29,7-32,2				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP 001/4
KRU 7,2 c
Edition 2.64

En

177
PE 5 A 85 B 320 LS-215 RQ 400/1850 A 211 D
459
PE 8 A 85 B 320 S 2068 A 211 DRE

supersedes 1.11.56
company: Krupp
engine: D 573 M

Set all cylinders to tappet clearance 0.3 + 0.05 mm at TDC;
mark port opening at cylinder 1 (drive end).

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	3,8 - 4,3				
	6	0,5 - 1,2				
	12	6,4 - 7,4				
200	9	1,1 - 1,9				
	21	10,6 - 12,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control		
rev/min	Control rod travel mm	Setting point		Test specifications		Setting point		Test specifications		rev/min	Control rod travel mm	
		rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm				
1	2	3	4	5	6	7	8	9	10	11	12	
1800	12,4-13,2	1800	12,8	1850	12,6-12,8	800	0	200	7,6-8	800	15,6-16,1	
				1860	10 - 12,8			400	4,7-7,4		1000	15,1-15,4
				1940	0 - 7			600	0 - 2,6		1200	14,5-14,8
				2020	0			700	0		1600	13,1-13,4

Torque-control travel on flyweight assembly dimension a = $0,95 \pm 0,05$ mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
1800	78,0 - 79,0	1200	1200 1830	81,0 - 83,0 mind. 76,5		

Checking values in brackets

Test Specifications Fuel Injection Pumps and Governors

PE 6 A 90 C 320 RS 2177 EP/RSV 250-1100 A1 B 467 DR
1050*

supersedes

company

engine

Berliet

M 635 - 40 AD

Test with overflow valve and "A" lines (6 x 2 x 600)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,35 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,4 - 7,9	0,5			
	6 15	2,9 - 3,7 16,0 - 17,3				
200	6	1,1 - 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control				
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11			
ca. 60	1100	16,0	without auxiliary spring			ca. 25	250	6,2*	750	0			
	1140	12,4					100	19 - 21					
⑤	1150	10,0-12,0				with auxiliary spring				250	6,0-6,4	270	0,8-1,0
	1200	2,4- 6,5								320	2,0-4,2		
	1280	0 - 1					420	0 - 1					

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop		
Test oil temp. 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
	750	125,5-128,5	1120 1070*			100	21mm RW	225	7,0
						Idle*			
						250	2,3 - 2,7		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

En

PE 6 A 90 C 410 RS 2125 EP/RSV 250-1100 A 1 B 205 DL
S 2229

supersedes

company

engine

Lancia
516 000
520 000

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **4,4 + 0,1** mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	End of pump delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,9 - 6,5				
	6 12	2,0 - 3,0 9,5 - 10,5				
200	9	3,0 - 4,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 60	1100 1140 1180	16 12,2 7	without auxiliary spring			ca. 25	250	6,0	1000	0
⑤	1140 1240 1340	6,0-9,8 1,0-3,8 0,3-1,0				with auxiliary spring				100 250 350 450 550

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1000	113,5-116,5	1110-1120	800 500	113,0-117,0 112,0-116,0	100	15mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

A22

7 22



Test Specifications Fuel Injection Pumps and Governors

En

S 1017
PE 4 A 65 B 310 LS 470 EP/RSV 250-1100 A 1 A 97 D
S 1040 250-1200 A 1 A 97 D

supersedes 10.62
company: Hanomag
engine: D 28R 442

Note back

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,3 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1300	12	5,7 - 6,2				
	6 18	1,4 - 2,1 9,7 - 10,6				
200	6	0,8 - 1,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV 250-1100 A 1 A 97 D

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1120	16	without auxiliary spring			ca. 29	250	6	1100	0
	1180	11					100	19 - 21	900	0,5-0,7
1230	6	250				5,7-6,3	700	0,8-1,0		
⑤	1200	7 - 10				with auxiliary spring			350	4 - 5,3
	1250	3,3-5,8	400	2,5-4,5						
	1300	0,5-3,2	450	0,6-3,6						
	1400	0 - 1	600	0 - 1						

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop		
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
	1100	38,2-40,2	1120	700 400	40,0-43,0 40,5-43,5				./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

ca.72	1200	16				ca.29	250	6	1180	0
	1250	12	without auxiliary spring				100	19 - 21	1000	0,3-0,5
	1300	6,8					200	7 - 7,8	800	0,7-0,9
	1280	7 - 10					250	5,7-6,3	350	1-1,2
	1300	4,8-8,3	with auxiliary spring				400	2,0- 4		
	1350	1,5-4,2					600	0 - 1		
	1450	0 - 1								

Testoil-ISO 4113

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

- | | | |
|---|------------------------|-------------|
| 1. Governor-spring adjustment | corresponds to | (1) |
| 2. Pre-adjustment of full-load delivery and noting down of control-rod travel | roughly corresponds to | (2) |
| 3. Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2. | roughly corresponds to | (3) |
| 4. Final adjustment of full-load delivery by screwing back full-load stop screw | roughly corresponds to | (2) |
| 5. Adjustment of breakaway | corresponds to | (6) |
| 6. Testing of torque control and fuel-delivery characteristics | roughly corresponds to | (3)
(3a) |
| 7. Idle adjustment | corresponds to | (4) |
| 8. Testing high idle
Test starting fuel delivery and adjust with control-rod stop | corresponds to | (6a) |

Please consult test instructions as regards information given in parentheses.

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 6 A 70 B 412 RS 159 RQ 200/975 A 128 D
S 1058 MAN-Nr. 50

supersedes
company: 15.2.62
engine: MAN
D 1246 M 1

Note: Perform basic adjustment before setting start of delivery.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,6 - 4,8				
	6 12	2,0 - 2,6 6,9 - 7,5				
200	6	1,1 - 1,7				

Adjust the fuel delivery from each outlet according to the values in

Port closing difference between control-rod travel 12 and 21 = 2,5-3°

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control			
①		Setting point		Test specifications		Setting point		Test specifications		③			
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12		
550	15,6-16,4	550	16	975	14,2-14,7	520	0	100	5,5-7,5	700	15,6-16		
				1000	10,2-13,8			150	4,8-6,8			800	15,2-15,6
				1020	6 - 11,8			250	3 - 5				
				1060	0 - 6,8			350	0 - 2,5				
				1120	0			420	0				

Torque-control travel on flyweight assembly dimension a = 0,4 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	Control rod travel cm ³ /1000 strokes/mm 7
950	77,0 - 79,0	700	700 450	80,5-83,5 77,5-80,5		

Checking values in brackets

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ② and Governors

PE 8 A 75 B 320 RS 1022 RQ 200/1150 A307D, A440D
 RS 1099* RQ 200/1150 A509D*
 RS 1099** RQ 250/1075 A151D(V5530D)**

supersedes 9.64
 company: KHD
 engine: F 8 L 714
 (200 PS)
 (170 PS)*

Cam sequence 1 - 8 - 4 - 5 - 7 - 3 - 6 - 2 je 45°

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	3,8 - 4,2	0,3			
	12 15	6,7 - 7,6 9,4 - 10,6				
200	9	2,1 - 2,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

200/1150 *

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ④				Torque control ③			
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm			
1	2	3	4	5	6	7	8	9	10	11	12		
1050	14,6-15,4	1050	15,0	1150	14,8-15,0	420	0	100	6,0-8,0	300	15,8-16,7		
				1160	11,4-15,0			200	3,4-5,6			500	15,6-16,0
				1180	6,0-13,0			250	1,2-3,6			700	15,3-15,6
				1200	0 - 9,6			320	0			900	15,0-15,2
				1260	0								

Torque-control travel on flyweight assembly dimension a = 0,3 mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
1130	91,0 - 93,0	600	600 1000	94,0 - 97,0 92,0 - 95,0		

Checking values in brackets

B. Governor Settings

KHD 12,6 e

-2-

2

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel on flyweight assembly dimension a = _____ mm Speed regulation At _____ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm	rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	Control rod travel mm
1130	75,5 - 77,5			1000 600	75,5 - 78,5 77,5 - 80,5		

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

250/1075**

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
1000	13,8-14,6	1000	14,2	1075 1120 1140 1200 1240	14,0-14,2 7,5-12,5 4,5-10,5 0 - 5 0	440	0	150 200 250 300 340	7,3-8,1 5,5-8,1 3,0-5,6 0 - 2 0	700 800 900	15,0-15,4 14,6-15,1 14,3-14,7

Torque-control travel on flyweight assembly dimension a = 0,55 mm Speed regulation At _____ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm	rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	Control rod travel mm
RS 1099** 1050	73,0 - 75,0	600		600 800	76,5 - 79,5 74,5 - 77,5		

En Checking values in brackets

B3

Test Specifications Fuel Injection Pumps ① and Governors

En

PE 4 A 60 B 310 LS 166 RQV 250 - 900 A 102
S1064 250 - 950 A 102

supersedes 15.2.62
company: Hanomag
engine: D 28 L

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,1 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	4,5 - 5,0	0,3			
	6 18	0,6 - 1,2 8,3 - 9,1				
200	6	0,1 - 0,9				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

RQV 250-900 A 102

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
60±1,5	900	15 - 18				10±1,5	100	7,6 - 8		
	920	12 - 15,4					250	5 - 7		
	960	5,2 - 10,6					350	3,4 - 4,2		
	1000	0 - 6,2					500	1,6 - 2,8		
	1060	0					640	0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
900	40,0 - 42,0	905 - 920						./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
65 ± 1,5	950	15 - 17,2					100	7,2- 8		
	960	14 - 16,5					200	5,7-7,5		
	1000	8 - 12,5				10 ± 1,5	300	3,4-4,6		
	1060	0 - 6,2					500	1,1-2,3		
	1120	0					600	0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min Control rod travel mm
1	2	3	4	5	6	7	8 9

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm

En

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4
Edition 27.7.70

En

PE 4 A 90 C 412 RS 2248 EP/RSV 250-1100 A4 B1023DL
(V10586DL)

supersedes -
company Henschel
engine 542 - 08 HAN

See overleaf for special governor setting

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,8 - 6,3	0,4			
	6 15	2,5 - 3,4 13,5 - 14,8				
200		3,2 - 4,1				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Testoil-ISO 4113

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control				
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11			
ca. 72	1100	16,0	without auxiliary spring			ca. 29	250	6,0	1080	0			
	1150	11,0					100	19 - 21			800	0,9-1,1	
1180	6,6	250				5,7-6,3	350	1,4-1,6					
⑤	1170	6,0-10,0				with auxiliary spring					400	1,8-3,9	0 - 1
	1220	2,4- 4,6					560						
	1320	0 - 1											

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)	Note: changed to ... rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	65,5-67,5		700 500	74,0-77,0 71,5-74,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

- | | | |
|---|------------------------|-------------|
| 1. Governor-spring adjustment | corresponds to | (1) |
| 2. Pre-adjustment of full-load delivery and noting down of control-rod travel | roughly corresponds to | (2) |
| 3. Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2. | roughly corresponds to | (3) |
| 4. Final adjustment of full-load delivery by screwing back full-load stop screw | roughly corresponds to | (2) |
| 5. Adjustment of breakaway | corresponds to | (6) |
| 6. Testing of torque control and fuel-delivery characteristics | roughly corresponds to | (3)
(3a) |
| 7. Idle adjustment | corresponds to | (4) |

Please consult test instructions as regards information given in parentheses.

Test Specifications Fuel Injection Pumps and Governors

En

PES 6 A 85B 420 LS 402/11
S 445
S 2054

EP/RSV 300...1000 A2A 76 d
A 133 d
B

supersedes
company:
engine:

Case
12

See overleaf for special governor setting

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	6,5 - 7,0	0,4			
	6 15	2,3 - 3,1 14,0 -14,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in:

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 42°	1020	11,6	without auxiliary spring			ca. 22°	300	5,5	1000	0
	1060	8,8					100	19 - 21	900	0,1-0,4
1090	6	300				5,2-5,8	700	0,2-0,5		
⑤	1060	8,2-9,2				with auxiliary spring	380	2,3-3	500	0,2-0,5
	1100	4,6-6,2					500	0 - 1		
	1160	1 - 2,8								
	1240	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
rev/min 1	cm ³ /1000 strokes 2							
1000	73,0-75,0	1000-1015	900	76,0-79,0	100	7,9-8,6		
			700	76,0-79,0				
			1085	9,0-19,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

- | | | |
|---|------------------------|-------------|
| 1. Governor-spring adjustment | corresponds to | (1) |
| 2. Pre-adjustment of full-load delivery and noting down of control-rod travel | roughly corresponds to | (2) |
| 3. Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2. | roughly corresponds to | (3) |
| 4. Final adjustment of full-load delivery by screwing back full-load stop screw | roughly corresponds to | (2) |
| 5. Adjustment of breakaway | corresponds to | (6) |
| 6. Testing of torque control and fuel-delivery characteristics | roughly corresponds to | (3)
(3a) |
| 7. Idle adjustment | corresponds to | (4) |
| 8. Testing high idle
Test starting fuel delivery and adjust with control-rod stop | corresponds to | (6a) |

Please consult test instructions as regards information given in parentheses.

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4

En

PES 4 A 8 OB 420 LS 401/11 EP/RSV 300...850A 5 A 54 d

supersedes
company:
engine:

Case
1730/1700

See overleaf for special governor setting

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,4			
	6 15	2,2 - 3,0 11,5 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control			
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11		
ca. 43	870	16	without auxiliary spring			ca. 22	300	6,5	850	0		
	950	9,4							700	0,2-0,3		
⑤	990	6				with auxiliary spring			100	19 - 21	600	0,6-0,8
	950	8,6-10,5							300	6,2-6,8	400	0,7-0,9
	1000	4 - 6,5	350	4,2-5,4								
	1050	0,8- 3,6				400	2					
	1150	0 - 1				550	0					

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9
850	69,5-71,5	850 - 865	600 500 935	74,5-77,5 73,0-77,0 10,5-20,0	100	7,5-8,6		

Checking values in brackets

* 1 mm less control rod travel than col. 2

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

- | | | |
|---|------------------------|-------------|
| 1. Governor-spring adjustment | corresponds to | (1) |
| 2. Pre-adjustment of full-load delivery and noting down of control-rod travel | roughly corresponds to | (2) |
| 3. Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2. | roughly corresponds to | (3) |
| 4. Final adjustment of full-load delivery by screwing back full-load stop screw | roughly corresponds to | (2) |
| 5. Adjustment of breakaway | corresponds to | (6) |
| 6. Testing of torque control and fuel-delivery characteristics | roughly corresponds to | (3)
(3a) |
| 7. Idle adjustment | corresponds to | (4) |
| 8. Testing high idle
Test starting fuel delivery and adjust with control-rod stop | corresponds to | (6a) |

Please consult test instructions as regards information given in parentheses.

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4

En

PES 6 A 85 B 410 RS 452 RQV 250 - 1000 A 345
 PES 6 A 85 B 410 RS 453 RQV 250 - 1000 A 346

supersedes
 company: SLM
 engine: 12 BD 11

See overleaf for special governor setting

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 5,9				
	12 21	9,0 - 9,8 9,1 - 11,3				
200	9	4,4 - 4,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed				Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	①a Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11	
65±1,5	1000	14,8- 17	-	-	-	10±1,5	200	6,2- 8			
	1040	10 - 13,4					250	4 - 6,6			
	1080	5 - 9,8					300	3 - 3,8			
	1120	0,2- 6					400	2,2-3,7			
	1190	0					500	1,1-2,5			
						650	0				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1000	68,5-74,5* (RW 10,0mm)	1000*	230	21,5-23,5* RW 7,0 mm				
				b.w.				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Following basic adjustment of pump and testing of governor:

1. At $n = 1000$ move control lever to max. position; control-rod travel must be 14.7 - 17 mm. The control lever is then to be moved until a control-rod travel of 10 mm is obtained. Set stop screw and control-rod stop in this lever position.
2. Reduce engine speed to $n = 230$, set control lever to 7.0 mm control-rod travel (limit with shutoff stop screw as a temporary measure) and adjust delivery to 21.5-23.5 $\text{cm}^3/1000$ strokes.
3. Measure delivery at $n = 1000$ and 10.0 mm control-rod travel: it must be 68.5 - 74.5 $\text{cm}^3/1000$.
4. Test automatic control-rod stop (refer also to BMP 211/15)
(Pump S 452 with governor A 345)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4

En

PES 6 A 85 B 420 LS 402/11 EP/RSV300...1000 A2A 76 d
S 445 A 133 d
S 2054 B

supersedes
company: Case
engine: W 12

See overleaf for special governor setting.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	6,5 - 7,0	0,4			
	6 15	2,3 - 3,1 14,0 - 14,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 42	1020	11,6	without auxiliary spring			ca. 22°	300	5,5	1030	0
	1060	8,8					100	19 - 21	900	0,1-0,4
1090	6	300				5,2-5,8	700	0,2-0,5		
⑤	1060	8,2-9,2				with auxiliary spring	380	2,3-3,7	500	0,2-0,5
	1100	4,6-6,2	500	0						
	1160	1 - 2,8								
	1240	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...						
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1000	73,0-75,0	1000-1015	900	76,0-79,0	100	7,9-8,6		
			700	76,0-79,0				
			1085	9,0-19,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

- | | | |
|---|------------------------|-------------|
| 1. Governor-spring adjustment | corresponds to | (1) |
| 2. Pre-adjustment of full-load delivery and noting down of control-rod travel | roughly corresponds to | (2) |
| 3. Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2. | roughly corresponds to | (3) |
| 4. Final adjustment of full-load delivery by screwing back full-load stop screw | roughly corresponds to | (2) |
| 5. Adjustment of breakaway | corresponds to | (6) |
| 6. Testing of torque control and fuel-delivery characteristics | roughly corresponds to | (3)
(3a) |
| 7. Idle adjustment | corresponds to | (4) |
| 8. Testing high idle
Test starting fuel delivery and adjust with control-rod stop | corresponds to | (6a) |

Please consult test instructions as regards information given in parentheses.

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4

En

PES 4 A 85 B 420 LS 401/11 EP/RSV 300...850 A5A 90 d
S 445 A 136 d

supersedes

company:

engine:

Case
830/1700

See overleaf for special governor setting

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	6,5 - 7,0	0,4			
	6 15	2,3 - 3,1 14,0 - 14,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 43°	860	16	without auxiliary spring			ca. 22°	300	6,5	850	0
	920	12					100	19 - 21	700	0,2-0,5
	990	6					300	6,2-6,8	600	0,4-0,7
	960	7,4 - 9,6	400	4,2-5,2	400		0,4-0,7			
	1000	4,2 - 6,4	500	0 - 1						
1040	0,8 - 3,5	with auxiliary spring								
1120	0,3 - 1									

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
850	73,5-75,5	850-865	600 450 935	76,5-79,5 75,0-79,0 11,5-20,5	100	8,4-9,5		

Checking values in brackets

* 1 mm less control rod travel than col. 2

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

- | | | |
|---|------------------------|-------------|
| 1. Governor-spring adjustment | corresponds to | (1) |
| 2. Pre-adjustment of full-load delivery and noting down of control-rod travel | roughly corresponds to | (2) |
| 3. Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2. | roughly corresponds to | (3) |
| 4. Final adjustment of full-load delivery by screwing back full-load stop screw | roughly corresponds to | (2) |
| 5. Adjustment of breakaway | corresponds to | (6) |
| 6. Testing of torque control and fuel-delivery characteristics | roughly corresponds to | (3)
(3a) |
| 7. Idle adjustment | corresponds to | (4) |
| 8. Testing high idle
Test starting fuel delivery and adjust with control-rod stop | corresponds to | (6a) |

Please consult test instructions as regards information given in parentheses.

Test Specifications Fuel Injection Pumps ① and Governors

En

PES 6 A 85 B 412 RS 461 EP/RS 200/600-1100 AO A379d
MAN-Nr.

supersedes

company:

MAN

engine:

D 2146 M

See overleaf adjustment data for stop mechanism

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	6	1,3 - 2,1	0,4			
	9 15	4,9 - 5,5 12,3 - 13,1				
200	9	3,9 - 4,4				

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 31	600	12,4	ca. 68	1100	12,4	ca. 18	200	0,5	1080	0
	600	12 - 12,8		1100	12-12,6		100	20 - 21	1000	0,2
	650	4,5- 5,9		1150	6,5-8,3		200	8,2-8,8	800	0,5
	700	2,4- 4,2		1200	3,5-5		300	5,5-7	600	0,7
	750	0 - 2,5		1250	1,4-3,1		400	1,5-4,8	450	0,8
	850	0 - 1		1350	0 - 1		600	0 - 1		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1080	97,5-99,5	1110-1130	900	98,0-101,0	100	mind. 20 mmRW		
			700	94,5- 97,5				
			500	99,5-103,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

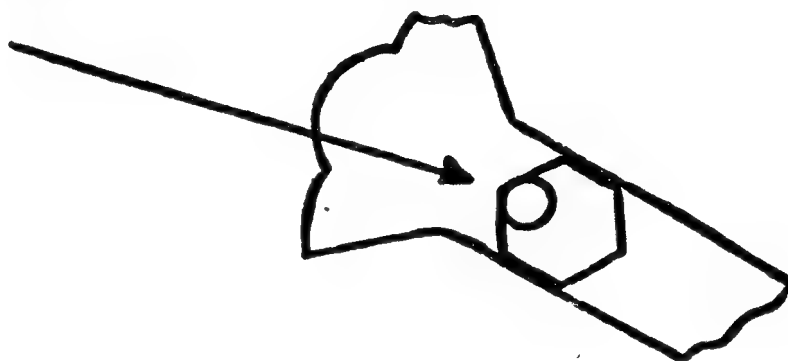
20.10.61

BOSCH

Geschäftsbereich KH, Kundendienst, Kfz-Ausrüstung.
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Adjustment data for stop mechanism

Before setting the governor, the driver lever is fixed such that if at all possible contact is not made with the stop pin on the stop lever in the stop position of the control lever. The stop pin on the stop lever is moved to the position shown on the drawing.



2. Governor setting in accordance with KDA-EPR 30 B

3. Setting of shutoff device

Do not actuate pump. Hold control lever in idle position, loosen driver lever, position against stop pin and tighten. The force required to override the idle stop must be 7 ± 0.5 kg perpendicular to the control lever (100 mm lg). The force can be increased by turning the eccentric slightly in a clockwise direction and reduced by turning it in a counter-clockwise direction. The force is measured after first moving the control lever back several times. If the force is correct, the position of the driver lever with respect to the control lever is to be corrected if necessary such that the driver lever makes contact with the stop pin when the control lever is in the right idle position. The shutoff stop screw of the control lever is to be positioned such that the control rod moves to approx. 0.5 mm before stop. The control-lever deflection between idle and stop should be roughly $7 - 10^\circ$.

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4

En

PES 6 A 80 B 420 LS 402/11 EP/RSV 300-900 A2A 75 d

supersedes

company:

Case

engine:

W - 10

See overleaf for special governor setting

Test with case overflow valve, Inlet pressure 1,0 bar.

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,2 \pm 0,05$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,5 - 6,0	0,4			
	6 15	2,2 - 3,0 11,6 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control			
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 38	915	10				ca. 21	300	5	880	0		
	940	8					100	19 - 21			800	0,2-0,4
⑤	980	4,5					220	8,7- 21	600	0,7-0,9		
	915	9,6-10,4					300	5,5			450	0,75-1,05
	930	8,4- 9,1					380	2 - 3,5				
	980	4,2- 5,4					500	0 - 1				
	1020	2 - 3,4										
1100	0,3- 1											

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
900	69,5-71,5	910	700 500 985	77,0-80,0 75,0-79,0 8,0-18,0	100	7,9-8,4		

Checking values in brackets

* 1 mm less control rod travel than col. 2

14.2.63

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

- | | | |
|---|------------------------|-------------|
| 1. Governor-spring adjustment | corresponds to | (1) |
| 2. Pre-adjustment of full-load delivery and noting down of control-rod travel | roughly corresponds to | (2) |
| 3. Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2. | roughly corresponds to | (3) |
| 4. Final adjustment of full-load delivery by screwing back full-load stop screw | roughly corresponds to | (2) |
| 5. Adjustment of breakaway | corresponds to | (6) |
| 6. Testing of torque control and fuel-delivery characteristics | roughly corresponds to | (3)
(3a) |
| 7. Idle adjustment | corresponds to | (4) |
| 8. Testing high idle
Test starting fuel delivery and adjust with control-rod stop | corresponds to | (6a) |

Please consult test instructions as regards information given in parentheses.

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4

En

PE 4 A 75 B 320/3 RS 1023 EP/MV 80 AA 95
(V 5061)

supersedes Edisa
company
engine

See overleaf for special governor setting

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	5	6	7
1000	9	4,7 - 5,1	0,4			
	6 15	1,9 - 2,6 10,4 - 11,5				
200	6	0,9 - 1,8				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Torque control travel mm	Leakage		Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
	Vacuum pressure drop mm water col	Time at least s	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
-	500-480	10	-	-	-	-	380	9,6-10,4		
Setting of push valve at 425 mm WG (approx. 6.4 mm control-rod travel)							400	6,7-10,4		
control rod travel test (cols. 4-11) = rotational speed 500 rev/min. adjust breakaway (cols. 4-5) by means of shims*							430	5,3- 6,5		
cam adjustment (B 8-9 - C 7-8) by means of shims**							500	3,2- 5,2		
							600	0 - 1,7		

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp. 40°C (104°F)			Fuel delivery characteristics			idle (stop)** idle (imbalance)		Control rod travel from full-load to idle
rev/min	Vacuum mm wat. col	cm ³ /1000 strokes	rev/min	Vacuum mm wat. col	cm ³ /1000 strokes	rev/min	Vacuum mm wat. col	mm cm ³ /1000 strokes
1	2	3	4	5	6	7		8
1000	0	51 - 53						

Checking values in brackets

8.12.81

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Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
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Full-load setting, Section C) prior to governor setting, Section B)

Governor setting with adjustment of push valve:

1. The vacuum connection is made in the normal manner at the vacuum chamber of the governor housing. The second connection remains open. Attach control-rod-travel measuring device.
2. Set vacuum to adjust push valve.
3. Alternately open and close additional connection by applying pressure with fingers and in doing so observe control-rod travel. The control rod moves as a result of the difference in pressure ahead of and downstream of the push valve.
4. Unscrew auxiliary push valve in governor housing by turning it in a counter-clockwise direction towards STOP until control rod (when effecting closing and opening as described under 3.) no longer moves.
5. Test speed regulation of governor in accordance with Columns 8 and 9.

En

B23

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4

En

PES 4 A 85 B 410 RS 503 RQ 250/1200 A 387 d

supersedes
company: Sagerer-Arbon
engine:

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm: 6
1000	9	4,1 - 4,6				
	6 15	0,1 - 0,8 11,4 - 12,6				
200	9	3,1 - 4,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		① Setting point rev/min 3		Full-load speed regulation Test specifications Control rod travel mm 4		Control rod travel mm 5		rev/min 6		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		⑤		Torque control rev/min 11		Control rod travel mm 12		③										
550	15,6-16,4	550	16	1200	14,1-14,3	1220	14	-14,2	1240	10	-14	1280	0	-8,4	1340	0	490	0	100	5,4-7,4	200	3,9-6,1	300	1	-3,6	390	0	700	15,8-16	800	15,4-15,8	900	15	-15,4	1000	14,6-15

Torque-control travel on flyweight assembly dimension a = 0,55 mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ -1000 strokes 2		②		Control rod stop rev/min 3		③a		Fuel delivery characteristics rev/min 4		cm ³ -1000 strokes 5		③b		Starting fuel delivery Idle speed rev/min 6		cm ³ /1000 strokes/mm 7		⑥	
1180	65,5 - 67,5	500	800	57,5-60,5	100	mind.13mm RW	250	Idle speed 6 mm RW													

Checking values in brackets

26.7.63

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4

En

Edition 5.10.66

PES 4 A 80 C 420 LS 2054 EP/RSV 300-850 A5 B 185 D

supersedes 8.10.63
company: Case
engine: 730-170
731

Test with case overflow valve
See overleaf for special governor setting

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,4			
	6 15	2,2 - 3,0 11,5 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.44	865	10,0	without auxiliary spring			ca.25	300	5,8	830	0
	890	7,6					100	19 - 21	650	0,4-0,6
920	5,2	300				5,5-6,1	500	0,7-0,9		
⑤	880	8,3-9,1				with auxiliary spring	400	1,9-3,6	400	0,7-0,9
	950	2,8-4,0					550	0 - 1		
	1050	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	4	5	6	7	8	9
830	71,0-75,0	850-865	650	75,0-78,0	100	7,5-8,6		
			500	73,5-76,0				
			935	12,5-24,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

As opposed to VDT-WPP 001/4 - first supplement - the special setting is as follows:

- | | | |
|---|------------------------|-------------|
| 1. Governor-spring adjustment | corresponds to | (1) |
| 2. Pre-adjustment of full-load delivery and noting down of control-rod travel | roughly corresponds to | (2) |
| 3. Screw in torque-control retainer until control-rod travel is 1 mm more than that measured under 2. | roughly corresponds to | (3) |
| 4. Final adjustment of full-load delivery by screwing back full-load stop screw | roughly corresponds to | (2) |
| 5. Adjustment of breakaway | corresponds to | (6) |
| 6. Testing of torque control and fuel-delivery characteristics | roughly corresponds to | (3)
(3a) |
| 7. Idle adjustment | corresponds to | (4) |
| 8. Testing high idle
Test starting fuel delivery and adjust with control-rod stop | corresponds to | (6a) |

Please consult test instructions as regards information given in parentheses.

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4

En

Edition 1.74

PES 6 A 70 C 410 RS 1227 EP/RSV 250-1150 A 1 B 164 L

supersedes

company:

Same Casani

engine:

1006/V

Special instructions on reverse side

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $3,5 + 0,05$ mm (from BDC) bei RW 21 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,5 - 3,9				
	6 12	1,7 - 2,7 4,8 - 5,6				
200	9	1,6 - 2,6				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 64	1150	16,0	without auxiliary spring			ca. 25	250	6,0	1130	0
	1200	10,8					100	19 - 21	400	0
1240	5,6	250				5,7-6,3	300	1,2-1,8		
⑤	1220	6,0-10,0				with auxiliary spring	300	3,9-5,0	400	0 - 1,8
	1250	2,6- 6,4				450	0 - 1,0			
	1300	0 - 2,5								
	1350	0 - 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9
1130	54,0-56,0*	1160-1170	-	-	-	-	-	-
								./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

Setting start of delivery and angular cam spacing:

1. Set start of delivery and angular cam spacing at 21 mm control-rod travel.
2. Check angular cam spacing at 12 mm control-rod travel (full-load position).
Permissible deviation max 1° cam rotation angle.
Difference in start of delivery between 21 and 12 mm control-rod travel is not measured.

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4
MAN 5,9 d
Edition 2,64

En

PE 6 A 65 B 412 RS 320

EP/RSV 200 - 1000 A 1/21
MAN-Nr.204 - 209 102,166

supersedes 3.8.61
company: MAN
engine: D 0026 M

S 1059

EP/RSV 250 - 900 A 1/21
MAN-Nr. 105

S 1081

EP/RSV 200 - 600 A 7/11 MAN-Nr. 207 A 102, 166
A 102, 166

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	3,8 - 4,2	0,3			
	6 12	1,1 - 1,8 5,8 - 6,5				
200	6	0,6 - 1,3				

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

200 - 1000 A 1/21, 102, 166

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control				
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm			
1	2	3	4	5	6	7	8	9	10	11			
ca. 52	1000	16	without auxiliary spring			ca. 21	200	6	980	0			
	1050	9,5					100	19 - 21			400	0	
	1100	2					200	5,7 - 6,3					
	⑤	1050					8 - 11	300					1,5 - 4
		1100					2 - 4	400			0 - 1		
	1200	0 - 1	with auxiliary spring										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
	Test oil temp. 40°C (104°F)	rev/min	cm ³ /1000 strokes	Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
	1	2	3	3	4	5	6	7	8	9
Nr.204	880	51,0-53,0	910 - 920				100	mind.9,9		
Nr.205	730	50,5-52,5	760 - 770							
Nr.206	980	47,0-49,0	1010 -1030							
Nr.209	880	52,0-54,5	910 - 920							./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Control-lever deflection in degrees			Lower rated speed		3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				rev/min	Control rod travel mm	rev/min	Control rod travel mm			
1	2	3	4	5	6	7	8	9	10	11		
ca. 45	900	16	without auxiliary spring			.20	250	6	880	0		
	930	11,8					100	19 - 21	400	0		
2a	960	7	with auxiliary spring				250	5,7-6,3	290	1,2-1,8		
	940	8,2-11,8					300	3,5- 5				
	960	4 - 9					400	0 - 1,3				
	1000	1,4- 3,6					450	0 - 1				
	1100	0 - 1										

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)						Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm	
1	2	3	4	5	6	7	8	9	
800	56,5-58,5	910 - 920							

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Control-lever deflection in degrees			Lower rated speed		3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				rev/min	Control rod travel mm	rev/min	Control rod travel mm			
1	2	3	4	5	6	7	8	9	10	11		
ca. 36	600	16	without auxiliary spring			ca. 16	200	6	580	0		
	625	11,2					100	19 - 21	400	0		
2a	650	5,2	with auxiliary spring				200	5,7-6,3	250	1,2-1,8		
	630	9 - 11,3					250	4 - 5				
	650	3,7- 9,2					300	1,5-3,7				
	680	2 - 3,4					350	0 - 2				
	750	0 - 1					400	0 - 1				

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)						Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm	
1	2	3	4	5	6	7	8	9	
Nr. 207		610 - 620							
580	49,0-51,5								
1250	47,0-49,0								
Nr. 208									

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

En

PES 4 A 50 B 410 RS 50 EP/RSV 300-1650 A 2 A 217 DL
 (C) RS 1010 B 230 DL
 C 320 RS 1143 EP/RSV 350-1650 A 2 A 217 DL
 B 230 DL, B 441 DL, B 488 DR
 C 410 RS 1025 B 522 DL

supersedes 3.66
 company: Daimler-Benz
 engine: OM 636

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,7 + 0,1$ mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	2,2 - 2,7	0,2			
	9	0,8 - 1,4				
	18	4,5 - 5,2				
200	9	0,6 - 1,1				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

300-1650 A^A 217 DL; 230 DL
 B

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.61 ⑤	1650	16,0	without auxiliary spring			ca.17	300	6,0	1630	0
	1700	11,0					200	19 - 21	1400	0,2-0,4
	1750	5,0					300	5,7-6,3	1100	0,9-1,1
	1720	7,0-9,8					400	4,1-5,1	450	1,1-1,3
	1750	4,0-6,9					500	1,5-3,7		
	1800	1,7-3,7	with auxiliary spring			670	0 -1,0			
	1900	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)	Note: changed to ... rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1650	27,2 - 28,2		900	29,2-30,2	100	16,2-16,8	350	6,0
			500	28,2-30,2				441DL 448DR)
When checking extend by ±0,5 cm ³			(Sect. C, col. 2)!		See reverse side!			

Checking values in brackets

* 1 mm less control rod travel than col. 2

The numbers denote the sequence of the tests

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Control-lever deflection in degrees			Lower rated speed		③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				rev/min	Control rod travel mm	rev/min	Control rod travel mm			
1	2	3	4	5	6	7	8	9	10	11		
ca. 63	1650	16,0	without auxiliary spring			ca. 19	350	6,0	1630	0		
	1700	11,8					1400	0,3 - 0,5				
	1760	5,8	1100	0,9 - 1,1								
	1750	4.6-8,5	450	1,1 - 1,3								
	1820	1,5-3,7										
②a	1920	0,3-1,0	with auxiliary spring			700	0 -1,0					

At n = 1680 the control-rod travel must be 0.5-1.0 mm smaller than with full load

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)								Control rod travel mm	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm		
1	2	3	4	5	6	7	8	9			

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = $\frac{\text{rev/min}}{\text{decreasing pressure - in bar gauge pressure}}$ / $\frac{\text{rev/min}}{\text{increasing pressure - in bar gauge pressure}}$

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)

Notes:

(1) when n = $\frac{\text{rev/min and gauge pressure =}}{\text{bar (= maximum full-load control rod travel)}}$

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

En

PES 4 A 80 C 410 RS 2094 EP/RSV 300-900A7B 528 L (1)
EP/RSV 575-1100A7B552 L (2)
EP/RSV 575-1000A7B552 L (3)

supersedes
company: Daimler-Benz
engine: OM 314

(1)-(Assemblies of equipment-50PS)
(2)-(Combine harvester-69PS)
(3)-(Assemblies of equipment-64PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,4			
	6 15	2,2 - 3,0 11,5 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

300 - 900 (1)

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 49,5	900	16,0	without auxiliary spring							
	920	9,6								
	930	4,8	with auxiliary spring							
⑤	900	7,5-8,0								
	920	2,4-3,7								
	950	0 - 1								

Note on governor setting:
*Release by 2 detent positions from max. tension to obtain speed droop (pre-adjustment)
**Position auxiliary idle spring appropriately, so as to obtain required control-rod travel of 2.5 mm at n = 920-930 min⁻¹.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop		
Test oil temp. 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
	880	49,0-51,0				100	13,2-13,8		./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

575-1100 (2)

Testoil-ISO 4113

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 56,5	1100	12,0	without auxiliary spring Tension max.- 4 crans with auxiliary spring			ca.25	575	5,0		
	1110	7,0					200	19 - 21		
	1120	2,4					575	4,7-5,3		
	1100	8,2-9,4					600	2,8-4,0		
	1130	3,0-4,4					660	0 - 1		
2a	1180	0 - 1								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)								
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
1080	53,0 - 55,0	1145: RW3 with idle-speed auxiliary spring	500	43,0-46,0	100	13,2-13,8	575	5,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

575-1000 (3)

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 51,5	1000	12,0	without auxiliary spring Tension max. - 4 crans with auxiliary spring			ca.25	575	5,0		
	1010	7,0					200	19 - 21		
	1020	2,4					575	4,7-5,3		
	1000	8,2-9,4					600	2,8-4,0		
	1030	3,0-4,4					660	0 - 1		
2a	1080	0 - 1								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)								
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
980	52,0 - 54,0	1045: RW3 with idle-speed auxiliary spring	500	43,0 - 46,0	100	13,2-13,8	575	5,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ① and Governors

PES 6 A 80 C 410 RS 2085 y RQV 300 - 1475 AA 532 DL, 533DL
556 DL, 562DL

supersedes 5.64
company: and DAI5,7f(5.64)
engine: Daimler-Benz
OM 352 (110 PS)
* OM 352 (100 PS)

* RS 2085 z (See reverse side)

Refer to VDT-BMP 211/15 for testing of automatic control-rod stop

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Testoil-ISO 4113

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,3 - 4,8				
	6 15	1,8 - 2,6 10,4 - 10,8				
200	9	2,4 - 3,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 66	1475 1500 1600 1700 1800 1850	16 - 18,9 14,6- 17,8 8,4- 13,5 1,6- 8,6 0 - 3,0 0				ca. 10	100 250 400 500 600 770	6,7-8,0 5,4-7,0 3,3-5,0 2,5-3,7 1,3-2,7 0	1450 1200 1000 900 500	0 0,4-0,6 0,6-0,8 0,9-1,1 1,1-1,3

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
RS 2085 y								
1450	45,5-47,5	1475	1000 800 500	45,5-48,5 45,0-48,0 41,0-44,5	100	14,2-14,8	→ ..556 .562 1300	DL,.. DL

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
	Control rod travel mm									
1	2	3	4	5	6	7	8	9	10	11

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1450	41,0-43,0	1475	1000	38,5-41,5 800 39,5-42,5 500 36,0-39,5	100	14,2-14,8		→ ..556 DL 1300

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
	Control rod travel mm									
1	2	3	4	5	6	7	8	9	10	11

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 DAI 1,8 n
Edition 3.66

En

*PES 4 A 50 C 410 RS 1127,Z EP/MZ 60 A 150 DL supersedes 2.64
 PES 4 A 50 C 410 RS 1010,Z EP/MZ 60 A 132 D, 143 DL company DAI 1,8n1 9.65
 PES 4 A 50 B 410 RS 144,Z EP/MZ 60 A 94 D, 99 D DAI 1,8 p 2.64
 Set breakaway at n 1775 and WG 575 by means of shims: at WG 590 engine Daimler-Benz
 governor must have regulated 0.2-0.6 mm control-rod travel. OM 636

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

See overleaf for governor and full-load values "Z"!
 Port closing at prestroke mm (from BDC)

Testoil-ISO 4113

1,7±0,1

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	5	6	7
1000	12	2,2 - 2,7	0,2			
	9 18	0,8 - 1,4 4,5 - 5,2				
200	9	0,6 - 1,1				

Adjust the fuel delivery from each outlet according to the values in [...]

B. Governor Settings

without ... Z

Torque control travel mm	Leakage		Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
	Vacuum pressure drop mm water col.	Time at least s	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
0,6±0,1	500-480	10					575	12,9-13,1*	200	13,6
							675	7,8-10,1	375	13,3-13,6
							825	2,0- 5,2	500	13,0-13,3

control rod travel test (cols. 4-11)
 = rotational speed 500 rev/min.
 adjust breakaway (cols. 4-5) by means of shims*
 cam adjustment (B 8-9 - C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp 40°C (104°F)			Fuel delivery characteristics			idle (stop)** idle (imbalance)		Control rod travel from full-load to idle
rev/min	Vacuum mm wat. col.	cm ³ /1000 strokes	rev/min	Vacuum mm wat. col.	cm ³ /1000 strokes	rev/min	Vacuum mm wat. col.	mm cm ³ /1000 strokes
1	2	3	4	5	6	7	8	8
1700	540	29,4-30,4	1000	225	27,9-29,9	0	0	5,6 - 6,0
			500	205	27,2-29,2			
			250	ca.670	6,2- 8,2			
				dispersion	max. 1,5			./.

Checking values in brackets

B. Governor Settings

with .."z"

DAI 1,8 n

-2-

3

Torque control travel mm 1	Leakage		Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
	Vacuum pressure drop mm water col. 2	Time at least s 3	Vacuum mmw.c. 4	Control rod travel mm 5	Vacuum mmw.c. 6	Control rod travel mm 7	Vacuum mmw.c. 8	Control rod travel mm 9	Vacuum mmw.c. 10	Control rod travel mm 11
0,6±0,1	500-480	10	-	-	-	-	575 675 825	12,6-12,8 6,5- 8,7 0,8- 3,8	200 375 500	12,3 12,0-12,3 11,7-12,0

control rod travel test (cols. 4-11)
= rotational speed 500 rev/min
adjust breakaway (cols. 4-5) by means of shims*
cam adjustment (B 8-9 - C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp. 40°C (104°F)			Fuel delivery characteristics			idle (stop)** idle (imbalance)		Control rod travel from full-load to idle mm cm ³ /1000 strokes 8
rev/min 1	Vacuum mm wat. col. 2	cm ³ /1000 strokes 3	rev/min 4	Vacuum mm wat. col. 5	cm ³ /1000 strokes 6	rev/min 7	Vacuum mm wat. col. 8	
1700	540	24,9-25,9	1000 500 250	225 205 ca.640	23,4-25,4 22,7-24,7 6,2- 8,2	0	0	4,3 - 4,7 dispersion max.1,5

Checking values in brackets

B. Governor Settings

Torque control travel mm 1	Leakage		Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
	Vacuum pressure drop mm water col. 2	Time at least s 3	Vacuum mmw.c. 4	Control rod travel mm 5	Vacuum mmw.c. 6	Control rod travel mm 7	Vacuum mmw.c. 8	Control rod travel mm 9	Vacuum mmw.c. 10	Control rod travel mm 11

control rod travel test (cols. 4-11)
= rotational speed 500 rev/min.
adjust breakaway (cols. 4-5) by means of shims*
cam adjustment (B 8-9 - C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp. 40°C (104°F)			Fuel delivery characteristics			idle (stop)** idle (imbalance)		Control rod travel from full-load to idle mm cm ³ /1000 strokes 8
rev/min 1	Vacuum mm wat. col. 2	cm ³ /1000 strokes 3	rev/min 4	Vacuum mm wat. col. 5	cm ³ /1000 strokes 6	rev/min 7	Vacuum mm wat. col. 8	

Checking values in brackets

Testoil-ISO 4113

C14

En
C14

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 6 A 80 C 412 RS 2182 RQ 250/1400 AA 322 DL (1)
RQ 250/1500 AA 322 DL (2)
RQ 250/1400 AB 605 DL (3)

supersedes 8.66
company: Steyr
engine: WD 609

Pay attention to note "without" or "with" disposable cap as regards full-load setting. Refer to Page 3 for setting of charge-air-pressure controller ..AB 605 DL.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,4			
	6 15	2,2 - 3,0 11,5 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQ 250/1400 AA 322 DL (1)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm rev/min 5 6		Setting point rev/min 7	Control rod travel mm 8	Test specifications Control rod travel mm rev/min 9 10		rev/min 11	Control rod travel mm 12
1300	14,4-15	1300	14,7	1400	14,4-14,7	510	0	100	6,2-8,1	450	16,0-16,3
				1420	11,0-14,7			200	4,6-6,8	700	15,2-15,6
				1450	6,0-12,0			250	3,6-5,8	850	14,7-15,0
				1500	0 - 7,6			300	2,0-4,4		
				1580	0			350	0 - 2,7		
								410	0		

Torque-control travel on flyweight assembly dimension a = 0,4 mm + 0,05 Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
without 1380	54,5-56,5	500	1000	49,5-52,5		
with 1380	49,0-52,0		500	45,5-48,5		
						./.

Checking values in brackets

B. Governor Settings

STE 6,0 0

-2-

Testoil-ISO 4113

Checking of slider PRG check (1)		Full-load speed regulation (4)				Idle speed regulation (5)				Torque control (3)	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1450	14,4-15	1450	14,7	1500	14,4-14,7	500	0	100	6,0-8,0	400	16,0-16,6
				1540	11,0-14,0			200	5,0-7,0	700	15,3-15,7
				1580	6,6-11,6			300	2,0-4,0	850	14,7-15,0
				1640	0 - 8			400	0		
				1740	0						

Torque-control travel on flyweight assembly dimension a = 0,4 mm +0,05 Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever (2) Test oil temp 40°C (104°F)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
1480	62,5 - 64,5	500	1000	55,5 - 58,5		
1480	57,0 - 60,0		500	53,0 - 56,0		

Checking values in brackets

B. Governor Settings

RQ 250/1400 AB 605 DL (3)

Checking of slider PRG check (1)		Full-load speed regulation (4)				Idle speed regulation (5)				Torque control (3)	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
550	15,7-16,3	550	16,0	1400	14,5-14,8	510	0	100	6,2-8,2	900	15,8-16,0
				1430	10,0-14,4			200	4,7-6,8	1050	15,3-15,6
				1460	6,0-12,0			250	3,6-5,8	1200	14,8-15,0
				1500	0 - 8			300	2,0-4,4		
				1580	0			410	0		

Torque-control travel on flyweight assembly dimension a = 0,4 mm +0,05 Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever (2) Test oil temp 40°C (104°F)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
without 1400	- 0,6 atü 73,5-75,5	900-0,35 atü	900	77,5 - 80,5 55,0 - 58,0		0,35 atü 0,1 atü
with 1400	- 0,6 atü 70,0-74,0					

En Checking values in brackets

Setting of manifold-pressure compensator - governor ..AB 605 DL

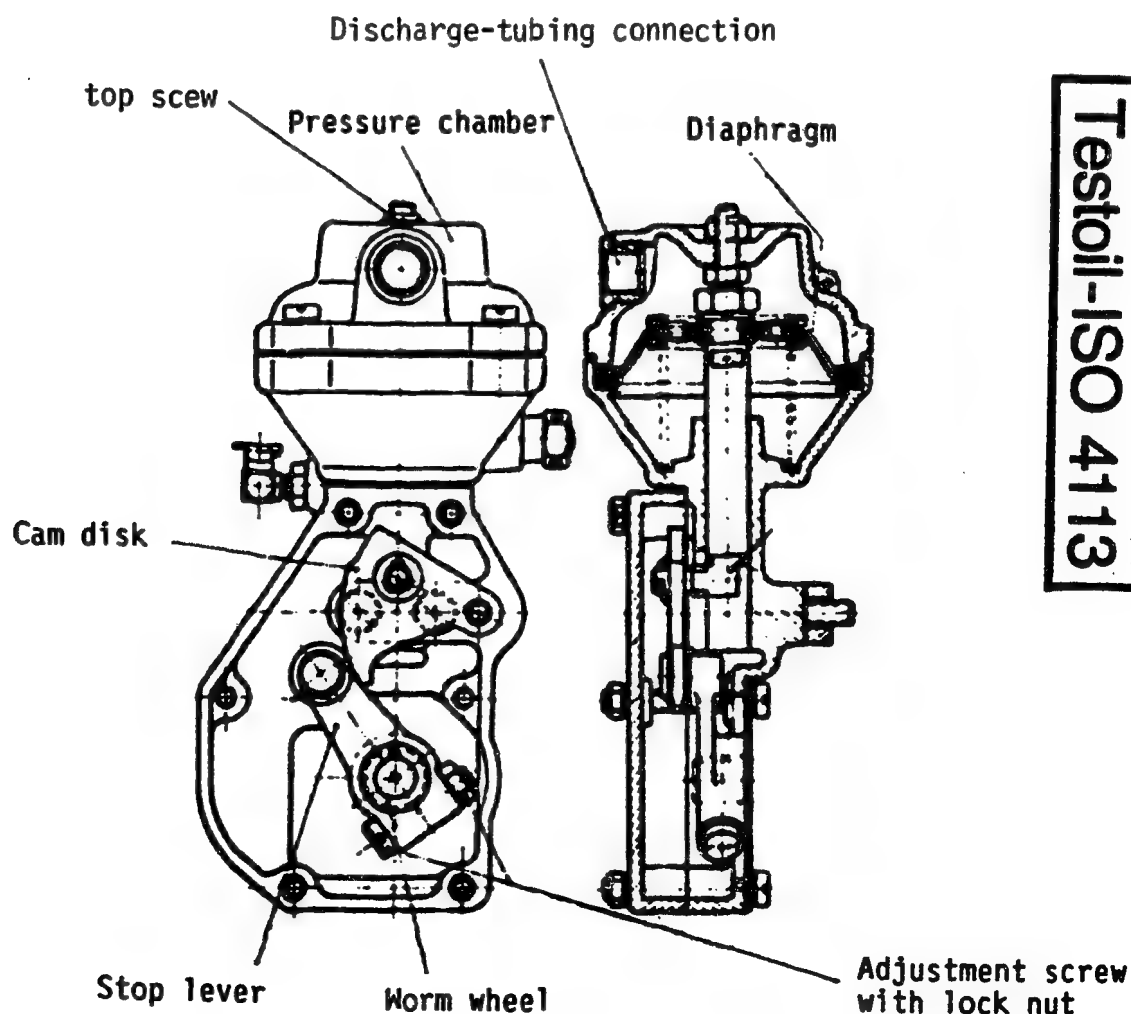
1. Connect up compressed air at discharge-tubing connection of diaphragm.

The charge-air pressure/gauge pressure can be set with compressed air, commercially available reducing valve and pressure gauge 0 - 3 atg.

2. Set full-load delivery at stop lever by turning adjustment screw (worm and worm wheel - roller makes contact with cam disk). Always tighten lock nut after performing adjustment!
3. Set full-load stop screw such that it makes slight contact - there must be no change in control-rod travel!
4. Test fuel-delivery characteristics - by changing charge-air pressure.

Whenever charge-air pressure is changed, move control lever back and re-position it.

5. Check: at $n = 900 \text{ min}^{-1}$, there must be no change in control-rod travel between 0.35 atg and 0.6 atg!
6. Set control-rod stop at $n = 900 \text{ min}^{-1}$ and 0.35 atg.



Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP 001/4 DAI 8,0 d
Edition 4.68

En

PE 6 A 90 C 410 RS 2124 RQ 300/1275 AB 577 DL
RS 2124 Y RQ 300/1325 AB 600 DL ./.

supersedes
company: Daimler-Benz
engine: OM 327

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15 + 0,1$ mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	6,4 - 6,9	0,4			
	6 15	2,9 - 3,8 13,8 - 15,3				
200	6	0,2 - 1,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 300/1275 AB 577 DL

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Control rod travel mm 8	Test specifications rev/min 10	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	
1250	14,7-15,3	1250	15,0	1275	14,7-15,0	560	0	200	6,6-8,1	500	15,8-16,3
				1320	9,0-13,5			300	4,3-6,4	700	15,4-15,7
				1350	3,0-10,7			400	0,4-2,8	900	15,0-15,2
				1380	0 - 7,5			460	0		
				1440	0						

Governor must regulate 0.5-1.0 mm from full load at n = 1300!

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3	Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /-1000 strokes 2	Control rod travel mm 3a	Control rod travel mm 3b	cm ³ /-1000 strokes 5	Control rod travel mm 6	cm ³ /1000 strokes/mm 7	Control rod travel mm 6
1250	68,5 - 70,5	450	1000	64,0-67,0	100	ca. 15 mm RW
			700	61,0-65,0		
			500	57,5-60,5		

Checking values in brackets

./.

B Governor Settings

RQ 300/1325 AB 600 DL

DAI 8,0 d

2

Testoil-ISO 4113

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
Control rod travel		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min	mm	rev/min	mm	mm	rev/min	rev/min	mm	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,7 - 16,3	600	16,0	1330	14,6-14,9	560	0	200	6,7-8,1	700	15,8-16,0
				1380	9,0-13,2			300	4,2-6,6	850	15,3-15,6
				1440	0 - 8,6			400	0,4-3,2	1000	14,9-15,1
				1530	0			460	0		

Governor must regulate 0.5-1.0 mm from full load at n = 1500!

Torque-control travel on flyweight assembly dimension a **0,35 mm** Speed regulation At **1 mm** less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
Test oil temp 40°C (104 F)					Idle speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
1300	68,5 - 70,5	500	1000	64,0 - 67,0	100	ca. 16 mm RW
			700	61,5 - 64,5		
			500	57,5 - 60,5		

When checking extend by ±0,5 cm³ ! See reverse side!

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n = $\frac{\text{rev/min}}{\text{decreasing pressure - in bar gauge pressure}}$ / $\frac{\text{rev/min}}{\text{increasing pressure}}$

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure - bar	Gauge pressure - bar	mm (1)

Notes.

(1) when n =

rev/min and gauge pressure -

bar (= maximum full-load control rod travel)

En

Test Specifications Fuel Injection Pumps and Governors

En

PES 6 A 85 C 410 RS 2105 EP/RSV 300-1000 A 4 B 376
 RS 2169 EP/RSV 300-1000 A 4 B 462 DL
 Same test specifications for PES 4 A ... S 519 MB 864)
 PES 4 A ... S 2067 MB 854) (80 PS)
 PES 4 A ... S 2168 MB 864)

supersedes DAI 8,7a
 company: 3.66
 engine: Daimler-Benz
 MB 856)
 MB 866) (120PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15 \pm 0,1$ / RW 9
 $3,45 \pm 0,1$ mm (from BDC) / RW 21

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,1 - 5,5	0,3			
200	6	1,3 - 2,1				
	12	8,6 - 9,6				
	9	3,9 - 4,4				
	21	11,4 - 13,9				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

EP/RSV 300-1000 A 4 B 376

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.62 ⑤	1000	16,0	without auxiliary spring with auxiliary spring			ca.27	300	6,0	980	0
	1040	11,7					100	19,0-21	500	0
	1080	6,1					300	5,7-6,3	330	1,0-1,6
	1060	7,0-10,5					380	2,5-3,5		
	1080	3,8- 8,0					500	0 - 1		
	1120	1,2- 3,4								
1200	0,3- 1,0									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
980	77,0-79,0	1010-1030					300	6
								./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

The numbers denote the sequence of the tests

EP/RSV 300-1000 A 4 B 462 DL

B. Governor Settings

① Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.62	1000	16,0	without auxiliary spring			ca.27	300	7	980	0
	1040	12,0					100	19 - 21	800	0,9-1,1
②a	1080	6,5	with auxiliary spring				300	6,7-7,3	400	1,5-1,7
	1080	4,6-8					450	2,2-4,5		
	1120	2,0-4,2					650	0 - 1		
	1250	0 - 1								

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limitat. Note: changed to ...) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤	④a Idle stop	
rev/min 1	cm³/1000 strokes 2		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7		rev/min 8	Control rod travel mm 9
980	62,2-64,2	1010-1030	700 500	74,5-77,5 73,0-76,0	100	21 mm RW	300	7	

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel-diminution difference mm (1)

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

En

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 A 70 B 412 RS 308 RQ 200/1100 A 237
RS 1087 MAN-Nr. 58

supersedes 2.61
company: MAN
engine: D 1246 M 5

Note: Perform basic adjustment before setting start of delivery.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,5 \pm 0,1$ mm (from BDC) / RW 12

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,9 - 4,2				
	6	2,3 - 2,9				
	12	6,1 - 6,7				
200	9	2,6 - 3,3				

Port closing difference between control-rod travel 9 mm and 21 = 1.5-2° camshaft.

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3			Control rod travel mm 4	Test specifications rev/min 6	Idle speed regulation Setting point rev/min 7		Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	Torque control rev/min 11		Control rod travel mm 12
550	15,6-16,4		550	16	1100	15,8-16	530	0		200	4,6-6,5				
					1120	11,9-16				250	3,7-5,7				
					1160	4 - 10,6				300	2,3-4,6				
					1200	0 - 5				400	0 - 1				
					1240	0				430	0				

Torque-control travel on flywheel assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1080	82,0 - 84,0	1080			100	mind. 12,4 = 21 mm RW

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP 001/4 MAN 8,3 p
Edition 2.64

En

PE 6 A 70 B 412 RS 298 RQ 200/1200 A 262
MAN-Nr. 65

supersedes 1.2.61
company: MAN
engine: D 1246 M 8

Note: Perform basic adjustment before setting start of delivery.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,3 + 0,1 mm (from BDC) / RW 12

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,0 - 4,2	0,2			
	6	2,3 - 2,9				
200	12	6,1 - 6,7				
	9	2,6 - 3,3				

Port closing difference between control-rod travel 9 mm and 21 = 2.5-3° camshaft.

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ④				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
500	15,6-16,4	500	16	1200	15,5- 16	480	0	100	6 - 8		
				1220	11 - 16			200	4,4-6,4		
				1240	5 - 12			250	3 - 5		
				1260	0 - 9			320	0 -2,5		
				1320	0			380	0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1180	71,0 - 73,0	1180			100	mind. 13,9 = 21 mm RW

Checking values in brackets

Test Specifications Fuel Injection Pumps and Governors

En

PES 4 A 50 B 410 RS 50 EP/RSV 250-1500 A 5/15, 333
RS 68Z -1525 A 5/15, 60
-1550 A 5A 307,333
(C) RS 1010, Z, X

supersedes DAI 1,8k, 2.64
company DAI 1,8m, 2.64
engine Daimler-Benz
UM 636

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	2,2 - 2,7	0,2			
	9	0,8 - 1,4				
	18	4,5 - 5,2				
200	9	0,6 - 1,1				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control				
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11			
ca. 74	1550	16	without auxiliary spring			ca. 22	250	6,0	1530	0			
	1620	10					100	19 - 21			490	0	
⑤	1740	2				with auxiliary spring				250	5,7-6,3	320	1,2-1,8
	1620	9 - 12								350	3 - 4,5		
	1660	4 - 8								470	0 - 2		
	1750	0 - 2,6								550	0 - 1		
1800													

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9
1500	28,2 - 29,2	1540	S 50,	1010			250	6,0
1500	23,7 - 24,7	1540	S 68,					
1500	27,2 - 28,2	1540	S 68 Z,	1010 Z			(→	307,
1500	22,7 - 23,7	1520	S 1010 X with governors-	1500				333)
1550	23,7 - 24,7	1570	S 68,	1010 with governors-	1550			

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ① and Governors

En

PES 6 A 80 B 410 RS 174 RQV 250 - 1300 A 140 D
RQV 250 - 1400 A 140 D* ./.

supersedes DAI 5,1 e
company: 3.64
engine: Daimler-Benz
OM 321
(95 PS)
(100 PS)*

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,3			
	6 15	1,2 - 2,0 10,3 - 11,4				
200	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

250 - 1300

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
66±1,5	1300	15 - 17,8				10±1,5	150	7,4-8,4	1300	0
	1340	10,6- 14,6			300		4,2- 6	1100	0,4-0,6	
	1400	4,8- 10,1			500		3,4-4,6	900	0,7-0,9	
	1460	0 - 5,4			700		1,4- 3	700	0,9-1,1	
	1540	0			920		0			

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) 2		Rotational-speed limitation intermediate speed 3	Fuel delivery characteristics high idle speed 5a		Starting fuel delivery idle switching point 6		Torque-control travel 5	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1280	51,0-53,0	1320						./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

250 - 1400

Testoil-ISO 4113

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
65±1,5	1400 1480 1600 1660	15,0-17,6 8,0-12,4 0 - 4,2 0	-	-	-	10±1,5	150 300 600 950	7,4-8,0 3,6-5,5 2,6-4,0 0	1400 1200 1000 500	0 0,4-0,6 0,7-0,9 0,8-1,0

Torque control travel a = 0,9 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1380	53,0 - 55,0	1420						

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps and Governors

En

PES 3 A 65 B320/3 RS 462, 483 (C) RS1049 EP/RSV 300-1300 A2A89D AOA87D EP/RSV 300-1050 AOA153D* AOA162D*

supersedes 2,0a (11.60)
company 2,0b (1.62)
engine KD 10,5 D
(35 PS / 2600)
*(28 PS / 2100)
Fendt tractors

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,45 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	4,3 - 4,7	0,3			
	9	2,0 - 2,6				
200	18	8,2 - 9,1				
	9	1,4 - 2,1				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

..A2A89D, ..AOA87D

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 49	1300 1350 1400	16,0 11,5 6,5	without auxiliary spring with auxiliary spring			ca. 18	300	6,0	See note	
⑤	1350 1400 1600	10,6-12,4 4,4- 8,0 0 - 1				100	19 - 21			
			300	5,7 -6,3						
			400	4,0 -5,0						
			500	1,4 -3,6						
			700	0 - 1						

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)	Note: changed to ... rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1280	39,0 - 40,0	1320	800	41,0-43,0				./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

..A0A1530D, ..A162D*

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.40	1050 1100 1150	16,0 11,0 5,6	without auxiliary spring			ca.17	300	6,0	See not	
⑤	1100 1180 1320	9,5-12,0 2,7- 4,3 0 - 1				with auxiliary spring				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min	cm ³ /1000 strokes	3	4	5	6	7	8	9
1	2							
1030	33,5 - 34,5	1060	800	34,5 - 36,5				
			⑥a					

Checking values in brackets

* 1 mm less control rod travel than col 2

Note:

The nameplate described on MWM 1.5 a has recently been extended in column n = (engine speed) and Q = (delivery) to include 2 engine speeds and 2 injected-fuel quantities, so as to be able to effect more precise adjustment in the case of governors with torque control.

As opposed to WPP 001/4, adjustment of governor (torque control) and full-load delivery with fuel-delivery characteristics, the following items thus apply:

- (2) Adjustment in accordance with nameplate n = (1st engine speed) and Q = (1st injected-fuel quantity); or in accordance with columns 1 and 2**
- (3) Is adjusted until there is a change in control-rod travel as read off under (2) or (with new nameplate) until 2nd injected-fuel quantity is reached at 2nd engine speed; or in accordance with columns 4 and 5**.
- (6) Is adjusted in accordance with nameplate n = (1st engine speed + 20 min⁻¹) or column 3 **

** The full-load data - arranged according to engine types - apply - in line with the above note - to repairs performed on Fendt tractor vehicles on which the new nameplate (with 2 engine speeds and injected-fuel quantities) has not yet been introduced.

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

En

PES 6 A 70 C 410 RS 1034 EP/RSV 250-1275 A2B 175 D
RS 1125 350-1275 A2B 175 D

supersedes 3.64
company: Daimler-Benz
engine: OM 312

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 8
1000	12	6,5 - 7,0	0,3			
	6 18	1,2 - 1,9 11,1 - 11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

250-1275 A 2 B 175 D

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 49	1275	16	without auxiliary spring			ca. 18	250	6	1250	0
	1320	12,4					100	19 - 21	1000	0,4-0,6
⑤	1390	5,8	with auxiliary spring				250	5,8-6,2	700	0,9-1,1
	1360	7 - 10					400	3,4-4,6	350	1,2-1,4
	1450	1,5-3,8					500	0,6-3,4		
	1600	0,3- 1					700	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9
1250	40,0-42,0	1290	800 500	40,0-43,0 40,0-43,0				./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

D5

B. Governor Settings

350-1275 A 2B 175 D

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 49	1275	16	without auxiliary spring	ca. 21	350	6	1250	0	1000	0,4-0,6
	1340	10,4								
	1380	6,3								
	1350	7,8-10,5								
	1400	3,7- 6,2								
⑤	1500	0,3- 2,2	with auxiliary spring	150	19 - 21	800	0,7-0,9			
	1550	0,3 - 1,0	250	8,3-9,9	600	1,0-1,2				
			350	5,7-6,3	400	1,2-1,4				
			450	4-5						
			600	0-2,8						
			700	0-1,0						

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
⑤										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps ① and Governors

En

PE 6 A 75 B 320 RS 1035 RQV 250-1250 A 333 D
RS 151
RS 1118

supersedes 5.64
company: KHD
engine: F 6 L 613
(120 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Batches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,2 - 6,6	0,3			
	9 18	3,0 - 3,7 8,5 - 9,5				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 66	1250 1300 1350 1400 1490	15 - 17,8 10 - 14,5 5 - 11 0 - 7 0				ca. 10	100 300 500 600 810	7 - 8 3,4-3,8 2,2-3,8 1,2-2,8 0	1250 1000 800 600	0 0,7-0,9 1,2-1,4 1,4-1,6

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5b	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1230	65 - 67	1260 - 1280	1000 600	65 - 68 65 - 68				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP 001/4 KHD 7,4a(7,4b)
Edition 11.68

En

PE 6 A 75 B 320 RS 154 RQ 250/1250 A 284
S 1035 A 312 D
S 1118

supersedes 5.64
company: KHD
engine: F 6 L 613
(120 PS)
(110 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $1,9 + 0,1$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,2 - 6,6	0,3			
200	9	3,0 - 3,7				
	15	8,5 - 9,5				
200	9	1,8 - 2,8				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
450	15,7-16,3	450	16	1250	15,5 -16	440	0	200	6 - 8,1		
				1260	14 -16			250	3,5- 6		
				1280	7,5 -14			300	0 - 2,5		
				1310	0 - 9			340	0		
				1370	0						

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
1230	65,5 - 67,5	1230			100	mind. 9,9
1230	59,0 - 61,0					

Checking values in brackets

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 DAI 5,7 e
Edition 2.66

En

PES 6 A 80 C 410 RS 2085 y RQV 300 - 1475 AA 532DL,533DL
RS 2194 y 556DL,562DL

supersedes 5.64
and DAI15,7f(5.64)
company: Daimler Benz
engine: OM 352
(110 PS)
*OM 352
(100 PS)

* RS 2085 z (See reverse side)
RS 2194 z

Refer to VDT-BMP 211/15 for testing of automatic control-rod stop

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,3 - 4,8				
	6 15	1,8 - 2,6 10,4 - 10,8				
200	9	2,4 - 3,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 66	1475 1500 1600 1700 1800 1850	16 - 18,9 14,6 - 17,8 8,4 - 13,5 1,6 - 8,6 0 - 3,0 0				ca. 10	100 250 400 500 600 770	6,7-8,0 5,4-7,0 3,3-5,0 2,5-3,7 1,3-2,7 0	1450 600	0 0,9-1,1

Torque control travel a = 1,0 mm 533 D
1,2 mm 532 D

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Control rod travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /100H. 7	rev/min 8	mm 9
..RS 2085 y 1450	45,5-47,5	1475	1000 800	45,5-48,5 45,0-48,0 41,0-44,5	100	7,2-8,2		..556 DL: ..562 DL 1300

Checking values in brackets

* 1 mm less control rod travel than col. 2

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation RQV	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm ³ /1000 strokes	Control-rod stop RQ	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes
1	2	3	4	5	6	7

..RS
2085z

41,0-43,0

1475

1000 38,5-41,5
800 39,5-42,5
500 36,0-39,5

100 7,2 - 8,2

Intermediate speed

→ 556 DL 1300 U/min

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 IHC 2,2 p

En

PES 4 A 60 B 420 LS 105 .. EP/RSV 250-750 A4 A 146 d
S, t, u, v, w, x -900..
-950..
-1000..
-1200 A2 A 146 d

supersedes
company: IHC
engine DD 132
DU 132 D
DD 148
DU 148 D

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	4,5 - 5,0	0,3			
	6 18	0,5 - 1,2 8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

250-750

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control			
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11		
ca. 45	750 800 825	16 9,2 5	without auxiliary spring			ca. 22	250	5,5	780	0		
⑤	800	7,4-10,2				with auxiliary spring						100
	850	2,8- 4,5		250	5,2-5,8				300	0,3-0,5		
	950	0 - 1		350	2,6- 4							
					400				0,6- 3			
							500	0 - 1				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	② Full-load stop		⑥ Rotational-speed limitat. Note: changed to ... rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
	Test oil temp. 40°C (104°F)	rev/min 1		cm ³ /1000 strokes 2	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8
S105u	730	34,5 - 36,5	760 - 770	500	35,0-38,0				
S105t	730	38,5 - 40,5	760 - 770	500	40,0-43,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

The numbers denote the sequence of the tests

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
			4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 51	900	16	without auxiliary spring			ca. 21	250	5,5	880	0
	950	9					with auxiliary spring	100	19 - 21	700
②a	970	4,6						250	5,2-5,7	300
	950	7 - 10					350	2,6- 4		
	1000	1,6-3,8					400	0,6- 3		
	1100	0 - 1					520	0 - 1		

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limitat. Note: changed to ...) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤		④a Idle stop	
rev/min 1	cm³/1000 strokes 2		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9		
S105v 880	33,0 - 35,0	910 - 920	500	35,0-38,0						
S105t 880	39,0 - 41,0	910 - 920	500	40,0-43,0						

Checking values in brackets

* 1 mm less control rod travel than col. 2

Governor 250-950 with pump ..S 105 x (engine DD 132)
 ..S 105 w (engine DD 148)

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
			4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 55	950	16	without auxiliary spring			ca. 22	250	5,5*	930	0
	1000	9					with auxiliary spring	100	19 - 21	700
②a	1020	5,5						250	5,2-5,8	300
	1000	7 - 10,5					350	2,6-4		
	1050	2 - 4					400	0,6-3		
	1150	0 - 1					520	0 - 1		

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limitat. Note: changed to ...) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤		④a Idle stop	
rev/min 1	cm³/1000 strokes 2		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9		
S105x 930	31,5 - 33,5	960-970	500	34,0-37,0						
S105w 930	40,0 - 42,0	960-970	500	41,5-44,5						

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 58	1000	16	without auxiliary spring			ca. 22	250	5,5	980	0
	1050	8,8					100	19 - 21		
	1070	5					250	5,2-5,8		
	1050	7 - 10					350	2,6-4		
	1100	2 - 4					400	0,8-3		
②a	1200	0 - 1	with auxiliary spring				520	0 - 1	350	0,7-0,9

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤	④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
S105a	32,5 - 34,5	1010-1030	500	35,0 - 38,0					
980									
S105t	38,0 - 40,0	1010-1030	500	40,0 - 43,0					
980									

Checking values in brackets * 1 mm less control rod travel than col. 2
 Governor 250-1200 A 2 A 146 d with pump ..S 105 v (engine DU 132)

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 60	1200	16	without auxiliary spring			ca. 29	250	5,5	1180	0
	1300	11,4					100	19 - 21		
	1400	6					250	5,2-5,8		
	1350	7,5 - 10					400	3,3-4,4		
	1400	4,4 - 7,8					500	1 -3,3		
②a	1500	0,6 - 3,8	with auxiliary spring				700	0 - 1	350	0,3-0,5
	1650	0 - 1								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤	④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
S105v									
1180	34,5 - 36,5	1210-1230	500	34,0-37,0					

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ① and Governors

En

PES 4 A 60 B 420 LS 181 RSV 250 1400 A4

supersedes
company: KHD
engine:

See overleaf for information in brief on RSV governor.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,7 \pm 0,1$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	1,2	4,5 - 5,0	0,3		1,0	
	6 18	0,6 - 1,2 8,3 - 9,1				
200	6	0,1 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min 10	mm 11
55±4	1400	16				18	250	5,5	1400	0
	1400	15 - 17			100		19 - 21			
	1450	6,6 - 10			200		6 - 12	550	0	
	1500	2,2 - 5			250		5,5	450	0,4 - 1,0	
	1600	0 - 1			350		3 - 4	300	1,7 - 2,3	
	1640	0			600		0			

Torque control travel a = mm

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Full-load stop at n 1000 must limit control-rod travel 10.5!								

Checking values in brackets

* 1 mm less control rod travel than col. 2

Provisional test data for RSV governor:

1. Control-lever check measurement:

Vertical position = 40° on device EFEP 56;
Max. position (Section B, Column 1) set min. 20 mm control-rod travel (adjust stop screw);
Set stop position (control lever 0°); control rod must have between 0.2 and 0.5 mm play.

(Control-lever position "Full" = in pump direction)
(Control-lever position "Stop" = opposite)

2. Setting of governor spring (without auxiliary spring):

(Accessible following removal of upper housing screw, n = 0, control lever on stop)

Set in accordance with values in box -----(Section B, Columns 1...3).

(Turn screw with screwdriver to "right" = increased control-rod travel).

3. Setting of auxiliary spring:

(Screw and lock nut beneath nameplate on front of governor).

In accordance with values in box----- (Section B, Columns 7...9) for governor.

4. Testing various speeds:

a) Regulation of lower rated speed (Columns 7...9)

b) Regulation of upper rated speed (Columns 1...3)

The mean values are to be aimed for at the various speeds; if necessary, adjust control lever (within tolerance) and then secure again with stop screw.

5. Setting full-load delivery and torque control:

(The full-load screw - bottom - and the adjusting screw and nut for the torque control - top - are accessible after opening the closing cover on the lower part of the governor housing)

a) Set full-load delivery in accordance with Section C, Columns 1...2.
If no full-load delivery is indicated, limit control rod to 1/2 control-rod travel (= 10.5 mm) with full-load screw.

b) Set torque control in accordance with Section B, Columns 10...11.

6. Re-seal governor cover and tighten it securely. Re-tighten screws and nuts and provide lead seal where necessary.

Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP 001/4 MAN 7,0 d
Edition 6,67

En

PES 6 A 85 C 410 RS 2205 RQ 250/1250 AB 580 L..
RS 2205, 2144 RQ 250/1050 ABV8694*
RS 2205, 2144 RQ 250/1200 ABV8857**
RS 2205 RQ 250/1250 AB 598 L***

supersedes
company: MAN
engine: D 0836 HM 9 H
(160 PS)
(142 PS)*
(135 PS)**
..HM 9, ..HM 9 H
(160 PS)***

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,7 + 0,1(2205)$ $1,5 + 0,1(2144)$
mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3 (2205)	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3 (2144)	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,8 - 4,3	0,4	9	4,9 - 5,5	
	6 12	0,5 - 1,2 6,4 - 7,4		6 15	1,3 - 2,1 12,3 - 13,1	
200	9	1,1 - 1,9		9	3,9 - 4,4	

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

..AB 580L(V8566), ..AB 598 L

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Setting point rev/min 3		Control rod travel mm 4		Test specifications rev/min 5		rev/min 6		Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12	
600	15,7-16,3	600	16,0	1270	15,6-16,0	560	0	100	6,8-8,1	-	-												
				1300	10,0-14,6			200	5,5-7,5														
				1350	0 - 8,6			300	3,4-5,5														
				1420	0			460	0														

Breakaway not before $n = 70$

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm ³ /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		Control rod travel cm ³ /1000 strokes/mm 7	
1250	81,5 - 83,5	1250		800	74,5 - 78,5	100	18 mm RW						

Governor must regulate 1,5 mm from full load at $n = 1290-1305!$

Checking values in brackets

B. Governor Settings

..V 8694*

MAN 7,0 d

-2-

②

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,7-16,3	600	16,0	1070	15,6-16,0	560	0	100	7,2-8,1		
	Breakaway not before n = 1070			1100	9,6-14,5			200	6,0-8,0		
				1150	0- 8,0			300	3,7-6,0		
				1210	0			400	0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm Control rod travel 7
1050	78,5 - 80,5	1050	800	74,5 - 78,5		
1200	72,5 - 74,5	1250	800	66,5 - 70,5		

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

..V 8857 **

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,7-16,3	600	16,0	1220	15,6-16,0	560	0	100	6,9-8,1		
	Breakaway not before n = 1220			1250	10,0-15,0			200	5,7-7,7		
				1300	0- 8,5			300	3,5-5,7		
				1360	0			460	0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm Control rod travel 7
1250	81,5 - 83,5	1250	800	74,5 - 78,5	100	19 mm RW
					250	6 mm RW

En Checking values in brackets

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 MAN8,3a
Edition 2.64

En

PE 6 A 70 B 412 RS 159
S 1058

EP/RSV 250 - 900 A 7 A 353
MAN-Nr. 291, 301 - 303

supersedes 3.8.61
company: MAN
engine: D 1246 M

EP/RSV 200 - .. A 7/11
MAN-Nr. 290, 304

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,25 + 0,1 mm (from BDC) / RW 12

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,5 - 4,8	0,3			
	6	2,0 - 2,6				
	12	6,9 - 7,5				
200	6	1,1 - 1,7				

Note: Perform basic adjustment before setting start of delivery.

Adjust the fuel delivery from each outlet according to the values in .

Port closing difference between control-rod travel 12mm and 21 = 2,5-3° camshaft.

B. Governor Settings

250 - 900 A 7 A 353

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control		
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11	
ca. 54	900	16	without auxiliary spring			ca. 21	250	6	880	0	
	930	10,8				100	19 - 21	450			0
	950	6				250	5,7-6,3	300			3,5-4,8
⑤	930	9 - 12	with auxiliary spring				350	0,5-3			
	950	3,6-8				450	0 - 1				
	980	1,2-3									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)									
rev/min 1	cm ³ /1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
Nr. 291	730	66,0 - 68,0	760 - 770					n 250	RW 6
Nr. 301	730	69,0 - 72,0	760 - 770						
Nr. 302	730	71,0 - 73,0	760 - 770						
Nr. 303	880	68,0 - 70,0	760 - 770						

Checking values in brackets

* 1 mm less control rod travel than col. 2

The numbers denote the sequence of the tests

B. Governor Settings

200 - 500 A 7/11

Testoil-ISO 4113

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca.28	500	16	without auxiliary spring			ca.12	200	6	480	0		
	520	9,2									100	19 - 21
	530	4,5	with auxiliary spring				200	5,7-6,3	370	0		
	520	7 - 11							250	4 - 5	250	1,2 - 1,8
	550	2,8-3,6							300	1,5-3,5		
	600	0,5-2							400	0 - 1		
2a	650	0 - 1										

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
480		510 - 520							

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

200 - 600 A 7/11

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca.36	600	16	without auxiliary spring			ca.16	200	6	580	0		
	625	11,2									100	19 - 21
	650	5,2	with auxiliary spring				200	5,7-6,3	400	0		
	630	9 - 11,3							250	4 - 5	250	1,2 - 1,8
	650	3,7-9,2							300	1,5-3,7		
	680	2 -3,4							350	0 - 2		
2a	750	0 - 1							400	0 - 1		

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
580	72,0 - 74,0	610 - 620							

Checking values in brackets

* 1 mm less control rod travel than col. 2

Nr.304

D19

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4
Edition 18.12.68

En

PE 3 A 80 C 410 RS 1000 S 75
EP/RSV 250-900 A 1 V 4681 A
EP/RSV 250-900 A 7 B 310
EP/RSV 250-900 A 7 AV6690
A 7 BV7545

supersedes 18.7.67
company: Steyr
engine: WD 313 s

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,4			
	6 15	2,2 - 3,0 11,5 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 43	900 930 950	16,0 10,6 6,5	without auxiliary spring			ca. 18	250	6,0	880	0
⑤	940 960 1050	6,4-10,2 3,0- 6,0 0 - 1	with auxiliary spring				100 250 300 350 420	19 - 21 5,7-6,3 3,6-4,8 0,6-3,2 0 - 1		
									290	1,3-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9
880	65,5 - 67,5	910						

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

Testoil-ISO 4113

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 60	900	1670	without auxiliary spring			ca. 25	250	6,0	880	0		
	940	11,4					100	19 - 21			400	0
	970	6,8					250	5,7-6,3				
	960	6,0-9,4	with auxiliary spring				320	2,6-4,2	300	1,2-1,8		
	1020	0,8-3,0					450	0 - 1				
	1100	0 - 1										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 48	900	15,0	without auxiliary spring			ca. 17	250	6,0	880	0		
	915	10,0					100	19 - 21			400	0
	930	4,0					250	5,7-6,3				
	920	5,0-11,0	with auxiliary spring				350	0,4-3,0	300	1,2 - 1,8		
	940	2,7- 3,8					420	0 - 1				
	1020	0 - 1										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 DAI 4,6 q 1
Edition 3.64

En

PES 6 A 70 B 410 RS 64 EP/RSV 250-900 A 1 A 363 D
RS 1034 1100 A 1 A 363 D*
RS 1078 1200 A 1 A 363 D**

supersedes 1.5.61
company: Daimler-Benz
engine: OM 312

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,5 - 7,0	0,3			
	6 18	1,2 - 1,9 11,1 - 11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

250-900 A 1 A 363 D

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.49	900 950 990	16 11,4 6	without auxiliary spring			ca.23	250	6	880	0
⑤	970 1000 1050	8 - 10,5 3,8- 8 0,5-3,5				with auxiliary spring				100
				250	5,7-6,3				500	0,7-0,9
				350	3,4-4,6				300	0,9-1,1
				400 550	1,5-3,8 0 - 1					
	1150	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...						
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
880	37,5 - 39,5	910 - 920	700 500	39,0 - 42,0 41,5 - 44,5	100	mind.7,9	250	6
								./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

The numbers denote the sequence of the tests

250-1100 A 1 A 363 D

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
ca.65	1100	16	without auxiliary spring			ca.28	250	6	1080	0	
	1150	12					100	19 - 21		900	0 - 0,2
②a	1210	5,8	with auxiliary spring				250	5,7-6,3	700	0,4-0,6	
	1180	7,5-10,5					350	3,7-4,8		500	0,7-0,9
	1200	4,8- 8,5					450	0 - 3,2		300	0,9-1,1
	1250	1,6- 4,4					600	0 - 1			
	1350	0 - 1									

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5		6	7	8	9
1080	38,5-40,5	1110-1130	700	39,0-42,0	40,0-43,0	100	mind.7,9	250	6
			500						
1080	38,0-40,0	1110-1130	700	38,5-41,5	39,5-42,5				
			500						

Checking values in brackets

* 1 mm less control rod travel than col. 2

** 250-1200 A 1 A 363 D

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
ca.70	1200	16	without auxiliary spring			ca.27	250	6	1180	0	
	1250	11,7					900	0 - 0,2			
②a	1310	6	with auxiliary spring				100	19 - 21	600	0,5- 0,7	
	1280	7 - 10					250	5,7-6,3		300	0,9- 1,1
	1300	4,4-8					350	3,6-4,8			
	1350	1 - 4					450	0 - 3			
	1450	0 - 1					600	0 - 1			

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5		6	7	8	9
1180	39,0-41,0	1210-1230	700	39,0-42,0	40,0-43,0	100	mind.7,9	250	6
			500						
1180	38,5-40,5	1210-1230	700	38,5-41,5	39,5-42,5				
			500						

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 6A65 B 312 LS 399	RQ 200/1350 A 430 D	(1)
PE 6A65 C 312 LS 1009	RQ 200/1350 AA 500 DL	(1)
PE 6A65 C 312 LS 1009	RQ 250/1300 AB 500 DL	(2)
PE 6A65 C 312 LS 1009 X	RQ 200/1350 AB 500 DL	(3)
PE 6a65 C 312 LS 1009	RQ 200/1200 AB 602 LL	(4)

supersedes 10.64
company: Büssing
engine: U 5-125 PS
"X" -110 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	5,7 - 6,2	0,3			
200	6	1,4 - 21, 0,8 - 1,6				

Adjust the fuel delivery from each outlet according to the values in

200/1350 A 430 D, ..AA 500 DL (1+3)

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1300	14,4-15	1300	14,7	1370 1390 1410 1430 1480	14,4-14,7 8,0-14,0 1,0-11,0 0 - 8 0	420		100 150 200 250 320	5,8-8,1 4,6-7,0 3,2-5,6 1,2-3,8 0	950 1100 1200	15,8-16,0 15,0-15,4 14,7-15,0
Breakaway not before n = 1370											

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
1350	57,0 - 59,0	500	500 900 1200	58,0 - 61,0 60,5 - 63,5 57,5 - 60,5		(1)
./.						

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

250/1300 AB 500 DL

BUS 5,4 h

-2-

Testoil-ISO 4113

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
550	15,7-16,3	550	16,0	1320	14,4-14,7	500	0	100	5,7-7,7	1000	15,8-16,0
	Breakaway not before n = 1320			1350	8,0-13,2			200	4,2-6,4	1100	15,3-15,6
				1380	0 - 9,5			300	1,5-3,8	1200	14,7-15,0
				1450	0			400	0		

Torque-control travel on flyweight assembly dimension a = 0,4 mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm	rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	Control rod travel mm
1300	59,0 - 61,0	500		900	60,5 - 63,5		(2)
				500	59,0 - 62,0		
1350	54,0 - 56,0	500		500	55,5 - 58,5		(3)
				900	58,0 - 61,0		
				1200	55,0 - 58,0		

Checking values in brackets

B. Governor Settings

200/1200 AB 602 DL

(4)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
450	15,7-16,3	450	16,0	1220	14,4-14,8	420	0	100	6,0-8,0	1000	15,6-16,0
	Breakaway not before n = 1220			1250	6,5-12,6			200	3,4-6,8	1200	14,6-14,9
				1280	0 - 8			280	0 - 2,5		
				1330	0			320	0		

Torque-control travel on flyweight assembly dimension a = 0,4 mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm	rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	Control rod travel mm
1200	58,0 - 60,0	500		900	60,5 - 63,5	100	ca. 18mm RW
				500	58,0 - 61,0		(4)

En Checking values in brackets

E1

E1

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 6 A 70 B 412 RS 159 z RQ 200/975 A 138, 195
RS 1058z MAN-Nr. 80*, 81*, 55**

supersedes 8:61
company: MAN
engine: D 1046 M*
D 1246 M 4**

Plunger-and-barrel assemblies with upper and lower helix and starting grooves.

Note: Perform basic adjustment before setting start of delivery.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,25 + 0,1$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,6 - 4,8				
	6	2,0 - 2,6				
	12	6,9 - 7,5				
200	6	1,1 - 1,7				

Port closing difference between control-rod travel 9 mm and 21 = 2.5-3° camshaft.

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,7-16,3	550	16	975	15,8- 16	540	0	100	6,1-8,1		
				1000	11 - 15			200	4,7-6,8		
				1040	4 -10,4			300	2,5-4,8		
				1080	0 - 5,4			400	0 -1,6		
				1120	0			440	0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
Nr.80*	950	72,0 - 74,0	950		100	mind.13,9
Nr.81*	950	76,0 - 78,0	950			
Nr.55**	950	75,0 - 77,0	950			

Checking values in brackets

①

Test Specifications Fuel Injection Pumps ① and Governors

40

VDT-WPP 001/\$ MAN 8,0 i

Edition 2.64

En

PE 6 A 70 B 412 RS 159 RQV 250/750/900 A 180
MAN-Nr. 52*, 302, 303

supersedes 3.8.81
company: MAN
engine: D 1046M*
D 1246M 6

Note: Perform basic adjustment before setting start of delivery.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,3 \pm 0,05$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	.9	4,6-4,8	0,3			
	6 12	2,0-2,6 6,9-7,5				
200	6	1,1-1,7				

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	①a Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
65±1,5	900	14,8-18	50±1,5	750	15 -19,5	10±1,5	200	7,3-8	-	-
	920	9,6-14,4		760	12 -16		300	3,6-4		
	960	0 - 7,4		780	6 -10		650	3,6-4		
	1010	0		810	0		750	0		

Port closing difference between control-rod travel 12 mm and 21 = $2,5-3^\circ$ camshaft.

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Nr. 52*								
880	62,0-64,0	910 - 920						
Nr. 302								
730	71,0-73,0	760 - 770						
Nr. 303								
880	68,0-70,0	910 - 920						

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

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E3

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 HAN 2,8 u 2
Edition 11.64

En

PE 4 A 60 B 310 LS 81 EP/RSV - 900 A 1 A 31
LS 166 - 950 A 1 A 31
LS 171 -1000 A 1 A 31
1065 -1300 A 1 A 31

supersedes 7.60
company: Hanomag
engine: D 28..

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,1 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	4,5 - 5,0	0,3			
	6	0,6 - 1,2				
200	18	8,3 - 9,1				
	6	0,1 - 0,9				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

EP/RSV 250 - 900 A 1 A 31

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 50	900	16	without auxiliary spring			ca. 24	250	6	880	0
	960	11					100	19 - 21	400	0
1010	4,5	200				8,2- 10	300	1,2-1,8		
⑤	980	6,8- 10				250	5,7-6,3			
	1050	0,9- 3,2				350	1 -3,4			
	1150	0 - 1				450	0 - 1			
with auxiliary spring										

The numbers denote the sequence of the tests

LS 166 with governor 250-900

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...						
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
880	40,0-42,0	910 - 920						./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

The numbers denote the sequence of the tests

B. Governor Settings

EP/RSV 250 - 950 A 1 A 31

Testoil-ISO 4113

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 50	950 1000 1030	16 10,6 6	without auxiliary spring			ca. 23	250	6,5	930 400 290	0 0 1,2-1,8
②a	1000	8,8-11,8					with auxiliary spring			
	1050	2,8- 5,4	250	6,2-6,8						
	1100	0 - 2,3	350	1,2-3,8						
	1150	0 - 1	400	0 -2,1						
						500	0 - 1			

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limitat. Note: changed to ...) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
rev/min 1	cm³/1000 strokes 2		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
LS 81	with governor	250 - 950						
930	40,0 - 42,0	960 - 970						

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

EP/RSV-250 - 1000 A 1 A 31

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 55	1000 1060 1100	16 10,5 5,7	without auxiliary spring			ca. 25	250	6	980 400 300	0 0 1,2-2,2
②a	1100	3,5 - 7,8					with auxiliary spring			
	1150	0,5 - 3,2	250	5,7-6,3						
	1250	0 - 1	300	3,7-4,8						
			350	0,8-3,3						
						450	0 - 1			

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limitat. Note: changed to ...) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
rev/min 1	cm³/1000 strokes 2		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
LS 81	with governor	250-1030						
980	38,5 - 40,5	1010-1030						

Checking values in brackets

* 1 mm less control rod travel than col. 2

E5

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 72	1300	16	without auxiliary spring			ca. 26	250	6	1280	0
	1340	11,2					400	0		
	1380	5,7	with auxiliary spring				100	19 - 21	290	1,2 - 1,8
	1360	7 - 10					250	5,7-6,3		
1380	3,7-7,8	300	3,8-4,8							
1420	0,8-3,5	360	0,6-3,3							
1500	0 - 1	450	0 - 1							

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)								Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	3	4	5	6	7	8	7	8	9
LS 81 with governor		250 - 1300									
1280	40,5 - 42,5		1310-1330								

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)								Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	3	4	5	6	7	8	7	8	9
LS 171 with governor		250 - 950									
930	56,5 - 58,5		960 - 970								

Checking values in brackets

* 1 mm less control rod travel than col. 2

E6

E6

En

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 MWM 2,0 a

E_n Edition 3.69

PES 3 A 65 B320/3 RS462, 483 EP/RSV 300-1300 A2AB9D
(C) RS1049 A0AB7D
EP/RSV 300-1050 A0A153D*
A0A162D*

supersedes 2,0a (11.60)
company: 2,0b (1.62)
engine: KD 10,5 D
(35 PS / 2600)
*(28 PS / 2100(./.
Fendt tractors

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,45 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	4,3 - 4,7	0,3			
	9	2,0 - 2,6				
200	18	8,2 - 9,1				
	9	1,4 - 2,1				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

..A2A89D, ..A0A87D

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 49	1300	16,0	without auxiliary spring			ca. 18	300	6,0	See not	
	1350	11,5					100	19 - 21		
	1400	6,5					300	5,7-6,3		
⑤	1350	10,6-12,4	with auxiliary spring				400	4,0-5,0		
	1400	4,4- 8,0					500	1,4-3,6		
	1600	0 - 1					700	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min	cm ³ /1000 strokes	3	4	5	6	7	8	9
1280	39,0-40,0	1320	800	41,0-43,0				./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

..A0A153D, ..A162D*

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.40	1050	16,0	without auxiliary spring			ca.17	300	6,0	See note	
	1100	11,0					100	19 - 21		
	1150	5,6					300	5,7-6,3		
	1100	9,5 - 12,0					400	5,0-6,0		
⑤	1180	2,7 - 4,3	with auxiliary spring				500	1,2-3,6		
	1320	0 - 1					700	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min	cm ³ /1000 strokes	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9
1030	33,5 - 34,5	1060	800	34,5 - 36,5				
			⑥a					

Checking values in brackets

* 1 mm less control rod travel than col 2

Notes:

The nameplate described on **MWM 1.5 a** has recently been extended in column n = (engine speed) and Q = (delivery) to include 2 engine speeds and 2 injected-fuel quantities, so as to be able to effect more precise adjustment in the case of governors with torque control.

As opposed to WPP 001/4, adjustment of governor (torque control) and full-load delivery with fuel-delivery characteristics, the following items apply:

- (2) Adjustment in accordance with nameplate n = (1st engine speed) and Q = (1st injected-fuel quantity); or in accordance with columns 1 and 2*.
- (3) Is adjusted until there is a change in control-rod travel as read off under (2) or (with new nameplate) until 2nd injected-fuel quantity is reached at 2nd engine speed; or in accordance with columns 4 and 5*.
- (6) Is adjusted in accordance with nameplate n = (1st engine speed + 20 min⁻¹); or column 3*

* The full-load data - arranged according to engine types - apply - in line with the above note - to repairs performed on Fendt tractor vehicles on which the new nameplate (with 2 engine speeds and injected-fuel quantities) has not yet been introduced.

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4

En Edition 3.71

PES 4 A 70 C 410 RS 1177 EP/RSV 250-1050 A1 B12L
 PES 3 A 70 C 410 RS 1177 EP/RSV 250-1050 A1 B1024L ./.

supersedes

company: Lamborghini

engine: FL 4
 FL 3

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,2 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	6	1,2 - 1,9	0,4			
	12	6,5 - 7,0				
	18	10,9 - 11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

250-1050 A1 B12L

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 58	1050 1100 1150	16,0 11,3 5,2	without auxiliary spring with auxiliary spring			ca. 25	250	6,0	1000	0
⑤	1120 1160 1260	8,0-11,0 2,8- 6,2 0 - 1				100	19 - 21	450		
			250	5,7-6,3	300	1,2-1,8				
				350 440	0,9-3,3 0 - 1					

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop		
Test oil temp. 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
	1000	42,0-44,0	1070						./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca.58	1050	16,0	without auxiliary spring			ca.25	250	6,0	1000	0		
	1100	11,4					100	19 - 21			450	0
	1150	5,2										
②a	1120	7,8-10,8	with auxiliary spring			ca.25	350	0,9 - 3,4	300	1,2-1,8		
	1160	2,5- 5,0					450	0 - 1				
	1260	0 - 1										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤	④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1000	40,5-42,5	1070							

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

① Upper rated Speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤	④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4

2. Edition

En

PES 3 A 80 C 320 LS 1249
PES 2 A 80 C 320 LS 1250
... D

EP/RSV 250-1100 A1B11R
EP/RSV 250-1200 A1B11R ./.

supersedes 3.71
company: Lamborghini
engine: FL 1003
FL 1002

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,4	9	4,6 - 5,0	
	6 15	1,2 - 2,0 10,3 - 11,4		6 -	2,0 - 2,8 - - - - -	
200	9	2,9 - 3,7		6	0,1 - 0,7	

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 60	1100	16,0	without auxiliary spring			ca. 25	250	6	1080	0
	1160	9,6					100	19,0-21,0		
1190	5,5	250				5,7- 6,3				
⑤ 1150	9,6-12,4						with auxiliary spring	300	4 - 5	
1200	3,8- 6,7	450	0 - 1							
1300	0,3- 1,0									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9
1100	53,5-55,5	1120						

Checking values in brackets

* 1 mm less control rod travel than col. 2

E11

EM

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
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250-1200 A1 B11R

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	mm	mm rev/min	4	5	6		rev/min	mm	rev/min	mm
ca. 64	1200	16,0	without auxiliary spring			ca. 25	250	6	1180	0
	1250	10,0					with auxiliary spring	100		
②a	1280	5,7						250	5,7- 6,3	300
	1250	8,0-11,2					300	4,0- 4,8		
	1300	2,2- 5,0					400	0 - 1,7		
	1400	0,3- 1,0					450	0 - 1		

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limitat. Note: changed to ... rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤	④a Idle stop	
rev/min 1	cm³/1000 strokes 2		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7		rev/min 8	Control rod travel mm 9
1200	54,5-56,5	1120							

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = _____ rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = _____ bar	Gauge pressure = _____ bar	mm (1)

Notes:

(1) when n = _____

rev/min and gauge pressure = _____

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4

2. Edition

En

PES 8 A 75 D 320 RS2357 RQV300-1500 AB821D,823D,844D
RS2357 RQV300- 800/1500 AB824,825
RS2358 RQV300-1500 AB822D

supersedes
company: IHC

engine:
DV 550 - 200, 180 PS
DV 462 - 160 PS

Test details see page 4!
1 - 8 - 7 - 3 - 6 - 5 - 4 - 2 je 45°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,95-0,1 mm (from BDC) see page 4!

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1500	10,0	6,2 - 6,5				
1500	ca.7,8	max. 4,5 0,1 - 1,4	(Cyl.: 1- 4-6-7) (Cyl.: 2- 3-5-8)			
300	ca.8,6	min. 3,4 0,1 - 1,4	(Cyl.: 1- 4-6-7) (Cyl.: 2- 3-5-8)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQV .. 823D

Upper rated speed				Intermediate rated speed				Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Control rod travel mm/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm	
1	2	3	3a	4	5	6	7	8	9	10	11	
ca.68	1600	15,0-18,2		-	-	-	ca.10	250	6,5-8,2	-	-	
	2000	0						400	2,9-4,5			
ca.65	1500	15,0-17,6						500	2,3-3,3			
	1600	10,0-15,0						650	1,1-2,1			
	1700	4,6-10,4						860	0			
	1940	0					3a					

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(200PS)								
1500	63,5-65,5 (RW 10,0)	1565: -0,1mm- 1650: 2,5-3,5 mmRW less than column 2!			100	11,1-13,4)		(Cyl. 1-4-6-7)
					300	1,4- 1,8)		(Cyl. 2-3-5-8 =0)

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

RQV ..821D,844D with Ppe2357

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.66	1600	15,0-18,2	-	-	-	ca.10	250	6,5-8,2	1600	8,3
	2000	0					400	2,9-4,5		
ca.65	1500	15,0-17,6					500	2,3-3,3	1200	0
	1600	10,0-14,0					650	1,1-2,1	700	1,0-1,2
	1700	4,6-10,4					860	0		
	1940	0								

Torque control travel a = 1,1 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Intermediate speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(180PS) 1500	59,0-61,0	1560:-0,1mm 1655:2,0-3,0 mmRW less than column 2!	1000	54,0-58,0	Cyl. 1-4-6-7= 100 11,1-13,4 300 1,4 -1,8 (Cyl.1-4-6-7)	(Cyl.2-3-6-7 = 0)		
					Charge-over point 250-180U/min			

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

RQV ..822D with Ppe 2358

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.68	1600	15,0-18,2	-	-	-	ca.10	250	6,5-8,2	1600	8,3
	2000	0					400	2,9-4,5		
ca.65	1500	15,0-17,5					500	2,3-3,3	1500	0
	1600	10,0-17,5					650	1,1-2,1	700	0,5-0,7
	1700	4,6-10,4					860	0		
	1940	0								

Torque control travel a = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Intermediate speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(160PS) 1500	49,0-51,0	1560: 0,1mm 1635:1,5-2,5 mmRW less than column 2!	1000	45,0-48,0	100 11,1-13,4 300 1,4- 1,8	(Cyl.1-4-6-7 Cyl.2-3-5-8 = 0)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

E14

E14 En

B. Governor Settings

RQV .824,825

Ppe 2357,2358

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 63	1620	13,8-16,6	ca. 41	800	8,4-11,4	ca. 10	200	6,0-8,0	250	0,7-1,8
	1870	0		900	5,3- 5,7		350	3,6-5,0	400	2,2-2,8
ca. 50	1520	ca. 9,5		1500	5,3- 5,7		500	2,0-3,2	900	7,4-7,6
	1650	3,2- 6,7		1650	0		680	0	1500	7,4-7,6
	1700	0 - 4,4							1800	
	1790	0							1900	end (11)
						③a			-	-

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Intermediate speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
200 PS with governor 825:								
1500	63,5 - 65,5	1550: 0,1mm 1635: 2,5-3,5 mmRW less than column 2!	700	58,5-61,5	100	11,1-13,4 (Cyl. 1-4-6-7)		(Cyl. 2-3-5-8-0)
					300	mind. 3,4 (Cyl. 1-4-6-7)		(Cyl. 2-3-5-8-0,1-1,5)

Checking values in brackets

* 1 mm less control rod travel than col 2

180 PS with governor 824:

1500 59,0 - 61,0

" 700 54,5-57,5

Change-over point
230-150 U/min.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
						③a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

En

Testoil-ISO 4113

1. Additional test items:

- 1.1 Supply pressure 2.5 bar
- 1.2 With engine off, check whether stop is reliably reached with shutoff device from full-load position. It should be noted that pin of control-rod stop does not go back.
- 1.3 Set shutoff device to 0.5-1.0 mm control-rod travel.
- 1.4 In start-of-delivery position of cyl. 1 (at drive) with control-rod travel 10.0 - 200 bhp, 9.5 - 180 bhp, 8.4 - 160 bhp effect movement with positioning screw (whilst pressing in pin) until it is in groove of camshaft. Tighten device and check again; correct if necessary. Then drill holes in pump housing and pin. In this position, set coupling such that jaws are horizontal; in this process check whether coupling can turn freely.

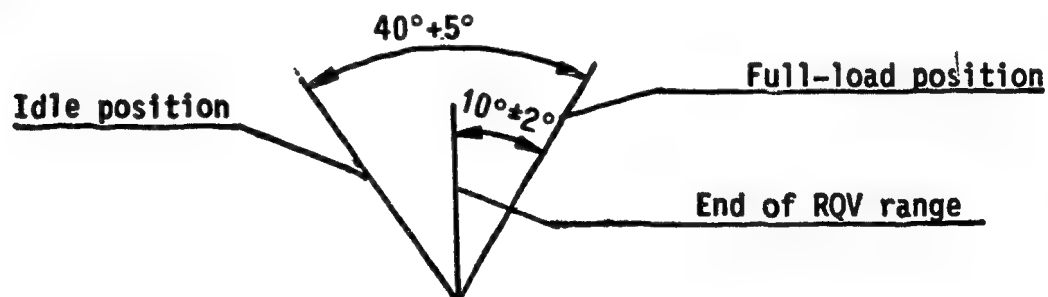
Note: When tightening coupling, positioning device is not to be used as locking mechanism!

2. Special operating conditions result in a special governor setting: (applies to 824 and 825)

- 2.1 Calibrate slider, measure sliding-sleeve travel and calibrate plate cam in accordance with WPP 001/4, 3rd Supplement, pictures 5...8.

The measuring tool is now to be ordered under the designation EPEP 618 - 1 682 329 038.

- 2.2 Fit governor cover, attach protractor and control-rod-travel measuring device.
- 2.3 Check average rated speed, as well as upper and lower rated speed. Provisionally set engine-speed limitation. It is to be ensured that the control-lever travel from the idle position to full-load speed regulation is $40 \pm 5^\circ$ and $10 \pm 2^\circ$ from the end of the RQV range to full-load speed regulation (see diagram).



If this is not the case, effect correction in accordance with Fig. 5-6 and 8!

- 2.4 Set full-load control-rod travel and full-load delivery; measure fuel-delivery characteristics. The switching point is the fixing/release of the full-load position in starting travel or starting quantity

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4
DAI 5.6 d
Edition 10.65

PES 6 A 80 C 410 RS 2014 RQV 300-1425 AA 434 D
* RQV 300-1000/1425 AA 504 D
* RQV 300-1000/1425 AA 435 D

supersedes 2.64
company: Daimler-Benz
engine: OM 322

* See note on reverse

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,5 - 5,0	0,3			
	6 15	1,2 - 2,0 10,4 - 11,8				
200	6	0,4 - 1,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

300-1425 AA 434 D

Upper rated speed				Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	①a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm ①
66±1,5	1425	15 - 18					10±1,5	200	7 - 8	1400	0
	1450	13 - 16,5						300	4,5-6,7	1200	0,4-0,6
	1500	8,5- 13,5						400	3,2-3,8	1000	0,8-1,0
	1550	4 - 10						600	2 - 3,6	800	1,2-1,4
	1600	0 - 6,8						800	0,3-1,5	600	1,4-1,6
	1700	0						930	0		

Torque control travel a = 1,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥	Torque-control travel ⑤		
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
AA434D								
1000	52,5-54,5	1425	1400 700 500	56,5-60,5 52,5-55,5 52,0-56,0	100	mind. 7,9		./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque-control travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
PRO 48	P 160	Z RQV 300	...1000/1425	AA 435 D						
68±1,5	1425 1450 1500 1550 1660	12 - 15,2 10 - 13,8 5 - 10,8 0 - 7,5 0	58 ±1,5	900 1000 1050 1100 1140	11,8-15 6,6-9,8 3,5-6,5 0 -3,2 0	10±1,5	200 300 500 600 780	7 - 8 4,4-6,8 2,2-3,8 1,2- 3 0	900 700 400	0 0,4-0,6 0,9-1,1

Torque control travel a = 1,0 mm

AA 435 D
AA 504 D

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Intermediate speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1000	52,5-54,5	1430 - 1450	500 700 1425	52,5 - 55,5 52,5 - 55,5 56,5 - 60,5	700			

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

RQV 300 - 1000/1425 AA 504 D

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque-control travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
68±1,5	1425 1450 1500 1550 1640	12 - 15 9,2- 13,2 4 - 10 0 - 6,8 0	62±1,5	1000 1050 1100 1300 1350	11 - 14 8 - 11 4,4-7,2 1,3-1,7 0	10±1,5	200 300 400 500 680	7 - 8 5 - 7 2 -4,5 0,5-1,7 0	1000 700 500	0 0,9-1,1 1,4-1,6

Torque control travel a = 1,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ③ and Governors

WPP 001/4

PE 4 A 70 B 120 RS S 897 EP/MV 80 A 95
PE 4 A 70 C 420/3 RS 1128 EP/MV 80 AA 95

supersedes
company: Fordson
engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	5	6	7
1000	·6	1,2 - 1,9	0,4			
	12 18	6,5 - 7,0 10,9 - 11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in * See page 2

B. Governor Settings

Torque control travel mm	Leakage		Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
	Vacuum pressure drop mm water col.	Time at least s	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
-	500-480	10	-	-	-	-	380	9,6-10,4		
Setting of push valve at 425 mm WG (approx. 6.4 mm control-rod travel)							400	6,7-10,4		
control rod travel test (cols. 4-11)							430	5,3- 6,5		
= rotational speed 500 rev/min.							500	3,2- 5,2		
adjust breakaway (cols. 4-5) by means of shims*							600	0 - 1,7		
cam adjustment (B 8-9 - C 7-8) by means of shims**										

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp. 40°C (104°F)			Fuel delivery characteristics			idle (stop)** idle (imbalance)		Control rod travel from full-load to idle
rev/min	Vacuum mm wat. col.	cm ³ /1000 strokes	rev/min	Vacuum mm wat. col.	cm ³ /1000 strokes	rev/min	Vacuum mm wat. col.	mm cm ³ /1000 strokes
1	2	3	4	5	6	7	8	8
1000	0	51 - 53						

Checking values in brackets

1.7.65

Full-load setting, Section C) prior to governor setting, Section B)

Governor setting with adjustment of push valve:

1. The vacuum connection is made in the normal manner at the vacuum chamber of the governor housing. The second connection remains open. Attach control-rod-travel measuring device.
2. Set vacuum to adjust push valve.
3. Alternately open and close additional connection by applying pressure with fingers and in doing so observe control-rod travel. The control rod moves as a result of the difference in pressure ahead of and downstream of the push valve.
4. Unscrew auxiliary push valve in governor housing by turning it in a counter-clockwise direction towards STOP until control rod (when effecting closing and opening as described under 3.) no longer moves.
5. Test speed regulation of governor in accordance with Columns 8 and 9.

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 6 A 85 B 310 LS 69, 172 RQ 200/950 A103D, 124 D
(312) ..S191,312,337 ..103D,244D,328D
C..S2044,2084 ..244D,328D,482D
C,D .. D 2084 RQV 200-500/950 AA 462

supersedes 10.64
company: Büssing
engine: U 10

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3 "B" u. "C"	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3 "D"	Spring pre-tensioning (torque-control valve) mm 6
	12	9,6 - 10,4	0,4	9	4,1 - 4,5	
1000	9	4,9 - 5,5		6	0,6 - 1,4	
200	9	3,9 - 4,4		9	1,4 - 2,2	

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

RQ.. 103 D 124D, 244D, 328D,482D

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
450	15,7-16,3	450	16,0	970	13,8-14,1	430	0	100	6,8-8,1	400	15,6-16,2
	Breakaway not before n = 970!			990	5,0-12,5			180	5,2-7,4	600	14,9-15,3
				1010	0 - 8,0			250	2,4-5,0	800	14,1-14,4
				1050	0			330	0		

Torque-control travel on flyweight assembly dimension a = 0,6 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
950	97,0 - 99,0	500	700	100,5-103,5	100	mind. 13,5
			500	107,5-110,5		
When checking extend by ± 1 cm ³ (col 2 and 5)!						

Checking values in brackets

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque-control travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca .66	950 1000 1060 1140	15,0-17,8 8,8-13,6 0 - 7,6 0	ca .54	480 550 650 900 1030	14,7-18,0 3,0-12,0 2,5- 3,5 2,5- 3,5 0	ca .10	100 200 300 450	6,1-8,0 4,7-7,2 2,4-5,0 0	-	-

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Intermediate speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min
1	2	3	4	5	6	7	8
930	103,5-106,5	960					

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min
1	2	3	4	5	6	7	8

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

En

PE 4 A 85 B 320 LS 552	EP/RSV 400-1950 AO A 101 (1)	supersedes	
	EP/RSV 400-1950 AO A 159 D (2)	company:	Krupp
PE 5 A 85 B 320 LS 553	EP/RSV 400-1900 AO A 101 (3)	engine:	D 459
	EP/RSV 400-1900 AO A 160 D (4)		D 573
PE 4 A 85 C 320 LS 2043	EP/RSV 400-1950 AO B 190 D (2)		
PE 5 A 85 C 320 LS 2045	EP/RSV 400-1900 AO B 101 (3)		

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,7 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
	12	8,9 - 9,5	0,4			
1000	6	2,2 - 3,0				
	9	4,4 - 4,9				
200	9	2,6 - 3,4				
	21	15,1 - 17,4				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

..A 101
..B 101

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 56	1900	16,0	without auxiliary spring			ca. 21	400	6	1850	0
	2000	11,0					200	19,0-21,0		
	2100	4,6	with auxiliary spring				320	8,1-9,8	500	1,2-1,8
⑤	2000	9,9-11,9					400	5,7-6,3		
	2080	3,8- 8,0					600	0,8-3,2		
	2160	1,0- 3,6					750	0 - 1		
	2300	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	5	6	7	8	9		
1850	90,5 - 92,5	1910-1930							
1900	96,0 - 98,0	1960-1980						governor 1900(3)	
								governor 1950(1)	
									./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

The numbers denote the sequence of the tests

B. Governor Settings

..159D, .. 190 D

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control			
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11		
ca. 57	1950	16,0	without auxiliary spring			ca. 21	400	6	1930	0		
	2000	13,5					200	19,0-21,0			1600	0,2-0,4
②a	2100	7,8	with auxiliary spring				400	5,7- 6,3	1200	0,6-0,8		
	2050	9,4-11,7					700	1,0- 3,6			500	0,8-1,0
	2100	5,8- 9,2					1000	0 - 1				
	2200	1,7- 4,5										
2400	0,3- 1,0											

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop
Test oil temp. 40°C (104°F)		Note: changed to ...) rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9	
rev/min 1	cm³/1000 strokes 2								
1900	96,0-98,0	1960-1980	1600	98,5 - 101,5	100	20 mm RW			
			1200	98,0 - 101,0					
Adjustment (2)									

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

.. 160 D

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control			
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11		
ca. 56	1900	16,0	without auxiliary spring			ca. 21	400	6	1880	0		
	1980	12,0					200	19,0-21,0			1600	0,3 - 0,5
②a	2080	6,0	with auxiliary spring				400	5,7- 6,3	1200	0,8 - 1,0		
	1980	11,2-12,8					700	1,1- 3,5			600	0,8 - 1,0
	2040	7,0-10,0										
	2160	1,5- 4,3										
2300	0 - 1											

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop
Test oil temp. 40°C (104°F)		Note: changed to ...) rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9	
rev/min 1	cm³/1000 strokes 2								
1850	87,0-89,0	1910-1930	1500	91,5-94,5	Adjustment (4)				
			1200	91,5-94,5					

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 6,1 a

2. Edition

En

PES 6 A 85 D 410/3 RS 2366 EP/RSV 325-1400 A8B674D, 707 D
 RS 2415 325-1150 A8B674D, 707 D
 RS 2532 EP/RS 325/1325 A0B691D, 709 D

supersedes 5.74
 company: K H D
 engine: BF 6 L 913

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,4			
200	6	0,6 - 1,4	***	See page 3 - 4!		
	9	1,4 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV 325-1400 A8B674D, 707D

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.69	1400 1450 1500	16,0 10,5 4,0	without auxiliary spring			ca.20	325	5,5	1400	0
⑤ ca.68	1400	ca.10,0					with auxiliary spring	200		
	1510	ca. 4,0	325	5,2-5,8						
	1600	0,3-1,5	500	1,2-3,3	500	1,2-1,4				
						660	0 -1,5			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA ***	0,7 bar	***	LDA ***	0,7 bar	100	119,5-129,5	325	5,5**
(increase by ± 1,0 cm ³ !)			LDA 500	0 bar 43,5-47,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

The numbers denote the sequence of the tests

EP/RSV 325-1150 A8B674D, 707D

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 56	1150	16,0	without auxiliary spring			ca. 21	325	5,5	1130	0
	1200	11,1					200	19 - 21		
	1250	5,4	325	5,5-5,8	500		1,0-1,2			
	1220 7,5-10,4		500	1,4-3,4						
	1300 1,3- 3,6		660	0 -1,5						
1380 0,3- 1,5		with auxiliary spring								

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤ Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)						
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA	0,7 bar	***	LDA	0,7 bar	100	119,5 - 129,5	325	5,5**
***		***	***	LDA 0 bar				
			500	43,5 - 47,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

EP/RS 325/1325 A0B691D, 709 D

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
VH ca. 70 FH max.	1325	15,8-16,4	- - -				325	8,3	1300	0
	1400	12,1-13,1					270	9,0-9,8		
	1480	7,4- 8,8	400	6,0-6,8	1000		0,8-1,0			
	1550 2,8- 4,8		550	3,5-4,0						
	1620 0		900	3,3-3,9				600	1,2-1,4	
		1200	2,4-3,0							
		1400	0							

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤ Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)						
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA	0,7 bar	***	LDA	0,7 bar	100	119,5- 129,5		
***		***	***	500	43,5 - 47,5			
***	See page 3 - 4!							./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

F2

F2

En

D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 a

-3-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
all governors	0,38	0,10	0,2 - 0,3 1,6 - 2,0

Notes

(1) when n = . rev/min and gauge pressure = bar (= maximum full-load control rod travel)

NOTES :

1. ** Single-lever operation in the case of Liebherr excavators; therefore use shorter screw 1 423 400 031 and set it to 0.3 - 1.0 before stop.
2. - Test EP/RS governor in accordance with WPP 001/4 KHD 1 c.
3. - Perform LDA (manifold-pressure compensator) adjustment in accordance with W 420/305.
4. - Dimension H = 22.5 mm - basic setting of LDA.

F3

En

F3

C. Settings for Fuel Injection Pump with Fitted Governor

①

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

BF 6 L 913 - PES 6 A D..RS2366, 2415 -F- or B-power output / .. rev/min

1400	88,0 - 90,0	1420	800	80,0-83,0	160 PS / n = 2800
1400	84,0 - 86,0	1420	800	66,0-69,0	142 PS / n = 2800
1325	87,5 - 89,5	1340	800	82,5-85,5	160 PS / n = 2650
1325	82,5 - 84,5	1340	800	66,0-69,0	140 PS / n = 2650
1250	87,0 - 89,0	1270	800	84,5-87,5	160 PS / n = 2500
1250	83,0 - 85,0	1270	800	76,0-79,0	148 PS / n = 2500
1250	81,0 - 83,0	1270	800	69,5-72,5	140 PS / n = 2500
1200	86,0 - 88,0	1220	800	84,5-87,5	156 PS / n = 2400
1200	78,0 - 80,0	1220	800	68,0-71,0	135 PS / n = 2400
1165	84,0 - 86,0	1180	800	84,5-87,5	152 PS / n = 2330
1150	83,5 - 85,5	1165	800	84,5-87,5	152 PS / n = 2300
1150	80,0 - 82,0	1165	800	72,0-74,0	142 PS / n = 2300
1100	82,0 - 84,0	1115	800	84,5-87,5	147 PS / n = 2200
1075	82,0 - 84,0	1090	800	84,5-87,5	144 PS / n = 2150
1075	78,0 - 80,0	1090	800	76,0-79,0	136 PS / n = 2150
1050	76,5 - 78,5	1065	800	73,5-76,5	130 PS / n = 2100
1000	82,5 - 84,5	1015	800	84,5-87,5	137 PS / n = 2000
1000	77,0 - 79,0	1015	800	72,0-75,0	130 PS / n = 2000
900	82,0 - 84,0	910	800	84,5-87,5	125 PS / n = 1800
875	68,0 - 70,0	885	800	66,0-69,0	106 PS / n = 1750
750	85,0 - 87,0	760	-	-	105 PS / n = 1500
750	78,0 - 80,0	760	-	-	100 PS / n = 1500

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

En

F4

F4

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 MAN 11,6 i
Edition 2.64

En

PE 8 A 70 B 410 LS 138 EP/RSV 250 - 900 A 7 A 355
S 1080 MAN-Nr. 321 - 329

supersedes 3.8.61
company: MAN
engine: D 1548 M

Note: Perform basic adjustment before setting start of delivery.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,35 + 0,1 mm (from BDC) / RW 12

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,6 - 4,8	0,3			
	6	2,0 - 2,6				
	12	6,9 - 7,5				
200	6	1,1 - 1,7				

Port closing difference between control-rod travel 12 mm and 21 = 4,5-5,5° camshaft.

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 54	900	16	without auxiliary spring			ca. 21	250	6		
	930	10,8					100	19 - 21	880	0
	950	6					250	5,7-6,3	450	0
⑤	930	9 - 12	with auxiliary spring				300	3,5-4,8	300	1,2-1,8
	950	3,6- 8					350	0,5- 3		
	980	1,2- 3					450	0 - 1		
	1050	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	② Full-load stop		⑥ Rotational-speed limitat. Note: changed to ... rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
	Test oil temp. 40°C (104°F) rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Nr. 321	880	82 - 84	910 - 920						
Nr. 322	880	79 - 81	910 - 920						
Nr. 323	-	-	-						
Nr. 324	880	72 - 74	910 - 920						
Nr. 325	730	72 - 74	760 - 770						
Nr. 326	-	-	-						
Nr. 327	-	-	-						

Checking values in brackets

* 1 mm less control rod travel than col. 2

Nr. 328	730	63 - 65	760 - 770
Nr. 329	980	73 - 75	1010 - 1030

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F5

F5

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 DAI 5,7 g

Edition 8.66

En

PES 6 A 80 C 410 RS 2085 X EP/RSV 350-1275 A2 B208DL
 RS 2085 W 350-1300
 RS 2085 X 350-1425

supersedes 10.65
 company: Daimler-Benz
 engine: OM 352-Unimog
 65 PS
 70 PS ./.
 80 PS ./.

PES 6 A 80 C 410 RS 2194 X,W,X

See overleaf for special governor setting

Measure pump with suction-gallery flushing (overflow valve)!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 ± 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,8 - 4,3	0,3			
	6 15	1,2 - 2,0 9,8 - 11,0				
200	9	1,8 - 2,6				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

350-1275

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 63	1275	16,0	without auxiliary spring			ca. 30	350	7,5	1275	0
	1400	10,4					200	19 - 21	1050	0
1480	5,8	350				7,2-7,8	800	0,5-0,7		
⑤	1450	5,4-9,0				with auxiliary spring	500	5,4-6,4	600	1,3-1,5
	1520	3,1-5,5	650	2,3-5,0	350		1,4-1,6			
	1600	0,6-3,6	800	0 - 3,1						
	1750	0,3-1,0	950	0 - 1						

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9
1275	34,5 - 36,5	1300	1000	32,5-35,5	100	7,9-9,9		
			800	33,5-36,5				
			500	34,0-37,0				./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

F7

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F7

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel (1)	
Degree of deflection of control lever	rev/min Control rod travel mm	Cont. travel mm rev/min (2a)	Degree of deflection of control lever	rev/min	Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 64	1300	16,0	without auxiliary spring	1300	7,5	ca. 30	350	7,5	1300	0
	1400	11,3					200	19 - 21	950	0
	1490	6,3					350	7,2-7,8	800	0,5-0,7
	1480	5,5-8,5	with auxiliary spring				600	3,3-5,5	500	1,4-1,6
	1600	1,8-4,5					950	0 - 1		
	1800	0 - 1								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b)	Fuel delivery characteristics high idle speed (5a)		Starting fuel delivery idle switching point (6)		Torque-control travel (5)	
rev/min	cm ³ /1000 strokes	rev/min (4a)	rev/min	cm ³ /1000 strokes (5b)	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1275	37,5-39,5	1300	1000	34,5-37,5	100	7,9-9,9		
1400	37,5-39,5	1430	800	35,5-38,5	100	7,9-9,9		
			500	36,0-39,0				
			1000	33,0-36,5				
			800	33,0-36,0				
			500	33,5-36,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel (1)	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min (1a)	Degree of deflection of control lever	rev/min	Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 69	1425	16,0	without auxiliary spring	1300	7,5	ca. 30	350	7,5	1400	0
	1500	12,6					200	19 - 21	880	0
	1600	6,8					350	7,2-7,8	700	0,7-0,9
	1580	6,0-8,6	with auxiliary spring				500	5,4-6,4	550	1,2-1,4
	1700	2,3-4,8					700	1,0-4,4	400	1,3-1,5
	1880	0,3-1,0					950	0 - 1		

Torque control travel a = mm

The following applies in amendment to the test instructions:

Testing of fuel-delivery characteristics. however correct fuel delivery at $n = 500 \text{ min}^{-1}$ - if necessary - by adjusting the spring retainer. Read off control-rod travel for next operation. Similar to (3a)

Adjustment of auxiliary idle spring. however set control rod at $n = 350 \text{ min}^{-1}$ with control lever to 2.0 mm less control-rod travel than that control-rod read off previously. Then screw in auxiliary idle screw and set such that control-rod travel is enlarged again by 0.5 mm. Similar to (4)

Otherwise the envisaged test operations apply.

Checking values in brackets

* 1 mm less control rod travel than col. 2

En

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4
IHC 2.0 e
Edition 10.68

En

PES 4 A 50 B 410 RS 34 RQV 200-825 A 32 D
RS 34,70,90 -850 A 32 D
RS 92,111 -850 A 32 D
3 A 50 B 320 LS 101 -850 A 87 D

supersedes: 9.64
company: IHC
engine: DED
DD124
DF

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	2,2 - 2,7	0,3			
	9	0,8 - 1,4				
	18	4,5 - 5,2				
200	9	0,6 - 1,1				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
65±1,5	850	15 - 18					100	7 - 8	850	0
	880	10,6-15,4					200	5 - 7	800	0 - 0,2
	920	4,8-11,4					400	1,4- 3	700	0,2-0,4
	960	0 - 7,3				10±1,5	500	0 - 1,6	600	0,3-0,5
	1030	0					580	0	500	0,4-0,6

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
800	29,2-30,2	855-870	850	26,7-29,7				
			500	28,7-30,7				

Checking values in brackets

* 1 mm less control rod travel than col. 2